



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>

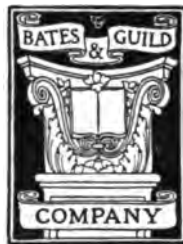
Library
of the
University of Wisconsin

DETAILS OF BUILDING CONSTRUCTION

BY

CLARENCE A. MARTIN

PROFESSOR OF ARCHITECTURE, CORNELL UNIVERSITY



BOSTON, MASS.

BATES & GUILD COMPANY

1914

Ninth Thousand

COPYRIGHT, 1899, 1905

BY

BATES & GUILD COMPANY

Printed by

THE EVERETT PRESS COMPANY

Boston, Mass.

251846
JAN -5 1922
SF
-1136

PREFACE.

THE author would have preferred to present this book to the public without a prefatory note, had not some explanations seemed necessary in order to prevent misunderstanding. The work is not the result of a deliberate attempt at book-making, undertaken with "malice prepense," but is the outcome of the efforts made by a teacher of architectural construction to present a part of his subject to his students. The drawings, consisting originally of rough sketches on large sheets of wrapping-paper, were at first used for temporary illustration only; but the results proved so satisfactory that it seemed best to study the work more carefully and to put it into more permanent form for class-room use.

This was undertaken some three years ago, still without thought of publication; and it was only after the first sixteen plates in blue-print form had been used for some time that their favorable reception by students, and by others who learned of them through students, suggested that they might prove useful to workers outside the college class-room. The revision and completion of the work were accordingly undertaken. Two or three of the original plates have been redrawn; but to redraw them all for the sake of uniformity and possible minor improvements would have involved an amount of labor not justified by the advantage gained, and would have necessitated a longer delay in publication than seemed advisable. In method of presentation, therefore, the work still shows to a considerable extent the various stages of its progress through a period of full three years. In other respects the attempt has been made, by means of careful revision in the light of the best criticism available, supplemented by continuous study and independent investigation, to present the best methods employed or recommended in present-day practice.

In scope the work limits itself to presenting only such details, principally in wood, as are in common use in domestic architecture and in smaller public buildings. The subject of framing has been entirely omitted, partly because it has been aptly treated elsewhere, partly because it does not lend itself readily to the method of treatment here chosen. In the matter of design the author wishes to put in a disclaimer. Nothing is further from his intention than an attempt to dictate in a question of design, but it has been necessary to use design in order to show construction. Therefore, while every effort has been made to show only the good in design, it should be borne in mind that the book is a treatise not on that subject but on construction.

In the method of presentation, the inconsistency arising from the fact that the work was so long in a process of becoming, and that its final evolution into book form remained so long unforeseen, has already been mentioned. The exact character of this inconsistency may be seen by comparing the plates treating of windows with those treating of doors. In treating of windows one plate is devoted to a certain type of window, with the corresponding details, then another plate takes up a different type, and so on. When, however, the subject of doors is taken up, one plate is devoted to types of doors, another to details of frames, another to details of panels, etc. For this there was no remedy except the radical one of redrawing the plates; and the case did not seem to warrant recourse to measures so heroic, since it is, after all, an open question as to which method is the better.

The device of lettering the notes on the plates, instead of presenting them separately in the form of text, was of necessity a part of the original idea, which contemplated only separate plates; and when the work of revision was undertaken, it seemed wise to retain the scheme. It is hoped that the obvious advantage of having the notes on the plates in close juxtaposition to the drawings to which they refer will more than compensate for the disadvantages of an enforced brevity so severe as to be almost incompatible with good English, and of an appearance of dogmatism which the writer would have preferred, if possible, to avoid. That the notes must be read in conjunction with the study of the drawings, if the latter are to be fully comprehended, would seem to be a fact so obvious as to require no emphasis, had not some of the criticisms received during the progress of the work revealed the fact that the notes had been neglected, despite the device used for securing their perusal.

In the matter of nomenclature care has been taken to use only such terms as are sanctioned by the authority of the best writers on architecture and building, and to use them accurately, not in the hope of bringing order out of the chaos of architectural terminology, but only in the hope of escaping the accusation of having worse confounded the present deplorable confusion.

The drawings have been carefully prepared after a long, practical experience and with the aid of one of the best libraries in this country, supplemented by a large collection of working drawings from the offices of leading architects. No pains have been spared to free them as far as possible from the taints of local practice; and while not all that is shown is unreservedly recommended, great care has been taken not to include anything that has not the authority of good practice, and that may not fairly be called good construction when the element of cost is considered. Some cheap methods of construction have been shown and recommended as good of their kind. Such, for instance, are the wood sills shown on Plate VI., which have already been subjected to adverse criticism, but which it seemed best, after mature consideration, to retain. The wood sill in other than frame buildings has the same excuse for being as has the shingle roof — it is cheap. It can of course be justified only on the score of expense; but it has the sanction of good practice in sections of the country where cut stone is not easily and cheaply obtainable; it is painted and treated frankly as wood, and has stood the test of time.

It has several times been suggested that the dimensions of parts be figured on the various details throughout the work, but to the author this has seemed entirely too dogmatic a procedure. As the sturdy Pennsylvania farmer builds his house with 3 x 5-inch studs,— if he does not build of stone,— and does not think of extravagance, while the toiling dweller in the cyclone regions of the West builds with 2 x 4-inch studs and wonders if he cannot safely space them 24 inches on the centers, so the 2½ or 3-inch window-sill that is accepted as a matter of course in one section would strike terror to the heart of the builder in the thriftier region where the 2-inch sill is an extravagance. In order to make the drawings, however, it was necessary to show material of definite size and thickness, and the dimensions chosen for the various parts have been made to represent as nearly as possible the average of good practice. As everything has been most carefully drawn to scale, the sizes used can be ascertained to a nicety by simply measuring them on the drawings. The type window, Plate IV., has been pretty fully figured, but beyond this it was felt that figured dimensions would seem to be an attempt at finality that would tend to restrict the liberty of choice and the exercise of individual judgment on the part of designer and constructor, without which there can be no true progress. If the work is to be used simply as a copy-book it must inevitably fail of its purpose, which in the intent of the author has been much broader.

In conclusion the author wishes to express his sense of obligation toward all those who have so generously assisted him both directly and indirectly with their criticisms and suggestions during the progress of the work, and his hope that the book will be found sufficiently helpful to elicit further criticism looking towards the improvement of future works of this character, whether by the author or by others.

C. A. M.

ITHACA, N. Y., *May, 1905.*

LIST OF PLATES.

- I.—DETAILS OF AN ORDINARY CELLAR WINDOW IN A STONE WALL.
- II.—DETAILS OF CELLAR WINDOW WITH SCREEN AND IRON GRILLE.
- III.—DETAILS OF CELLAR WINDOWS AND BASE COURSES FOR FRAME COTTAGES.
- IV.—A TYPICAL DOUBLE-HUNG WINDOW.
- V.—DETAILS OF DOUBLE-HUNG WINDOWS WITH INSIDE SHUTTERS.
- VI.—WINDOWS WITH OUTSIDE SHUTTERS.
- VII.—DETAILS OF COUNTER-BALANCED WINDOWS WITH MULLIONS AND TRANSOMS.
- VIII.—DETAILS OF WINDOWS IN FRAME WALLS.
- IX.—DETAILS OF DOUBLE-HUNG WINDOWS IN FRAME WALLS.
- X.—MISCELLANEOUS DETAILS FOR DOUBLE-HUNG WINDOWS.
- XI.—DETAILS OF BAY WINDOWS WITH COUNTER-BALANCED SASHES.
- XII.—DETAILS OF CASEMENT WINDOWS OPENING OUTWARD.
- XIII.—DETAILS OF CASEMENT WINDOWS OPENING IN.
- XIV.—DETAILS OF A CASEMENT WINDOW WITH MULLIONS AND TRANSOMS AND WITH SASHES OPENING OUTWARD.
- XV.—DETAILS OF A CASEMENT BAY WINDOW.
- XVI.—DETAILS OF PIVOTED CASEMENTS AND EYEBROW DORMERS.
- XVII.—STORM-RESISTING WINDOWS.
- XVIII.—TYPES OF DOORS WITH GENERAL DIMENSIONS.
- XIX.—EXAMPLES OF DOORS IN VARIOUS STYLES.
- XX.—DETAILS OF OUTSIDE DOOR FRAMES, STONE SILL, AND TRANSOMS.
- XXI.—DETAILS OF INTERIOR DOOR FRAMES AND WOODEN SILLS.
- XXII.—DETAILS OF DOORS.
- XXIII.—DETAILS OF SLIDING DOORS.
- XXIV.—DETAILS OF GUTTERS, FOR WOOD, STONE, AND TERRA-COTTA CORNICES.
- XXV.—DETAILS OF BOX CORNICES.
- XXVI.—DETAILS OF OPEN TIMBER CORNICES.
- XXVII.—DETAILS OF OPEN TIMBER CORNICES.
- XXVIII.—MISCELLANEOUS EXTERIOR DETAILS.
- XXIX.—WAINSCOTING AND ARCHITRAVES.
- XXX.—GENERAL INTERIOR FINISH.
- XXXI.—STAIR DETAILS.
- XXXII.—KITCHEN AND PANTRY DRESSERS.
- XXXIII.—FIREPLACE DETAILS.

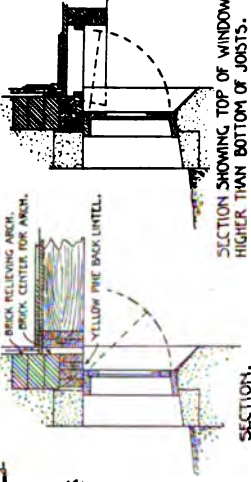
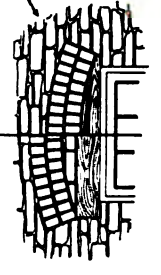
NOTE.

THE THICKNESS OF LUMBER FOR FINISHED WORK.

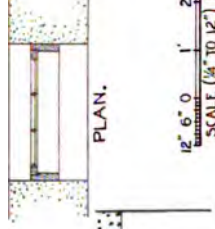
The boards and planks used for sheathing, flooring, and the finer work about buildings measure in the rough 1 in., $1\frac{1}{4}$ in., $1\frac{1}{2}$ in., 2 ins., $2\frac{1}{2}$ ins., and 3 ins. in thickness. White pine and other lumber produced in the North is usually sawed to full thickness so that the planing on both sides can ordinarily be done with a reduction of only $\frac{1}{8}$ in. in thickness; but lumber from the Southern markets, such as yellow pine, etc., is sawed so that it is necessary to count upon a reduction of $\frac{1}{4}$ in. in thickness for all lumber having a nominal thickness of 2 ins. or more. This gives the ordinary stock dimensions for the thickness of finished lumber as follows: $\frac{7}{8}$ in., $1\frac{1}{8}$ in., $1\frac{3}{8}$ in., $1\frac{3}{4}$ in. or $1\frac{7}{8}$ in., $2\frac{1}{4}$ ins. or $2\frac{3}{8}$ ins., and $2\frac{3}{4}$ ins. or $2\frac{7}{8}$ ins.

Finished lumber thinner than $\frac{7}{8}$ in. must be planed down or re-sawed from rough lumber 1 in. or more in thickness. Stock ceiling boards that are made for the market in large quantities are commonly $\frac{7}{8}$ in., $\frac{3}{4}$ in., $\frac{5}{8}$ in., $\frac{1}{2}$ in., and $\frac{3}{8}$ in. in thickness, and the price is gradually scaled down with the thickness so that the $\frac{3}{8}$ in. material is listed at about 60 per cent of the price of the $\frac{7}{8}$ in. material. For ordinary finishing, however, where the stock must be gotten out especially for the particular operation, there is little economy in using $\frac{3}{4}$ in., $\frac{5}{8}$ in. or $\frac{1}{2}$ in. material, as the quantity required for any one operation is usually so small that re-sawing cannot be done economically.

AN INTERIOR ELEVATION SHOWING TWO METHODS OF BUILDING RELIEVING ARCHES OVER WOOD CENTERS OR BACK LINTELS. WHERE INTERIOR FINISH IS USED THE WOOD LINTEL GIVES A FIRM NAILING FOR FURTINGS, GROUNDS, ETC.



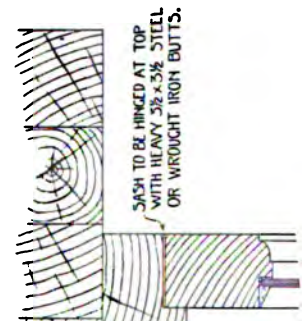
THE WALLS OF FIRST STORY ARE USUALLY BUILT FROM 2" TO 6" THINNER THAN CELLAR WALLS. THIS CAN BE ACCOMPLISHED BY AN OFFSET ON THE INSIDE EITHER AT TOP OR BOTTOM OF JOISTS, OR BY A WATER TABLE ON THE OUTSIDE, OR BOTH. THE TOP OF THE WATER TABLE IS USUALLY ABOUT ON A LEVEL WITH THE FIRST FLOOR, THOUGH IT MAY BE HIGHER OR LOWER AT THE OPTION OF THE DESIGNER.



12" 6" 0 1' 2' 3' 4' 5' 6'
SCALE (1/4" TO 12") FOR SMALL DRAWINGS.



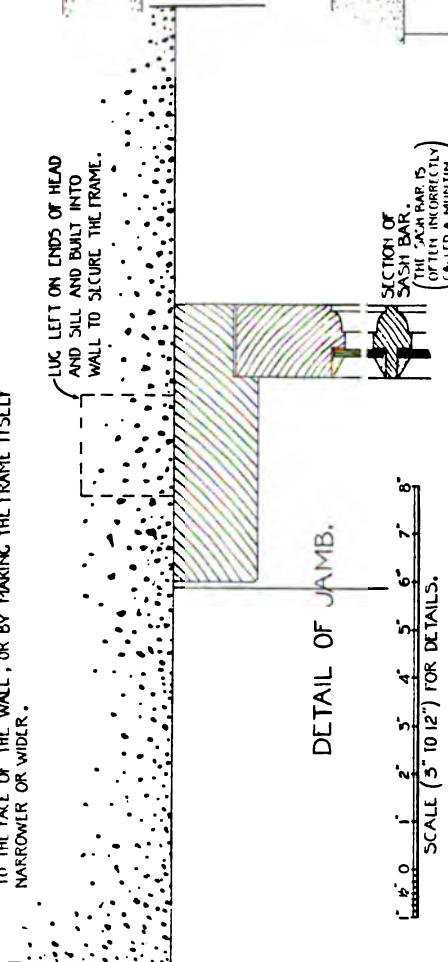
A CELLAR WINDOW WITH AN AREA FOR LIGHT. THE CORING SHOULD BE DOWNTAILED OR NOTCHED TOGETHER AT CORNERS AS SHOWN ON PLAN. AN AREA SHOULD HAVE A GRATING OVER OR A RAILING AROUND IT WHERE THERE MIGHT BE DANGER OF FALLING INTO IT IF UNGUARDED. THE GRATING IS USUALLY LEADED INTO CORING, BUT IT CAN BE HINGED AND LOCKED IF DESIRABLE. THE SIZES OF IRON SHOWN ABOVE ARE HEAVY ENOUGH FOR ORDINARY PURPOSES WHERE THE SIZE OF AREA IS NOT GREATER THAN 36 x 34. IN CHEAP WORK SIMPLE FLAG-STONES SET ON EDGE MAKE GOOD AREA WALLS AND REQUIRE NO CORING. AREA FLOORS MAY BE HARD BRICKS SET IN SAND, OR SOLID CONCRETE WITH DRAIN; DEPENDING UPON SIZE OF AREA, ITS USE, CHARACTER OF SOIL AND ITS CAPACITY FOR NATURAL DRAINAGE, ETC.



DETAIL OF HEAD.

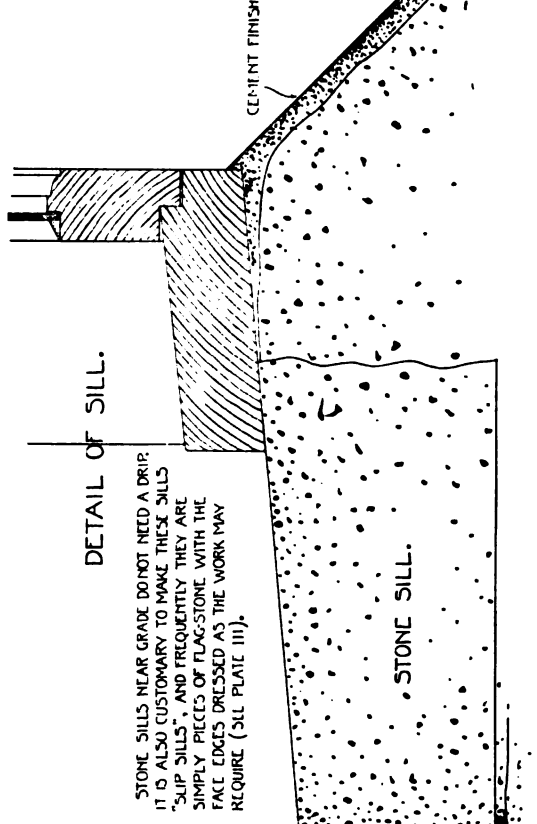
THE DEPTH OF REVEAL MAY BE INCREASED OR DIMINISHED BY SETTING THE FRAME FARTHER FROM OR NEARER TO THE FACE OF THE WALL, OR BY MAKING THE FRAME ITSELF NARROWER OR WIDER.

LUG LEFT ON ENDS OF HEAD AND SILL AND BUILT INTO WALL TO SECURE THE FRAME.



DETAIL OF JAMB.

1" 0 1' 2' 3' 4' 5' 6' 7' 8"
SCALE (5" TO 12") FOR DETAILS.



DETAIL OF SILL.

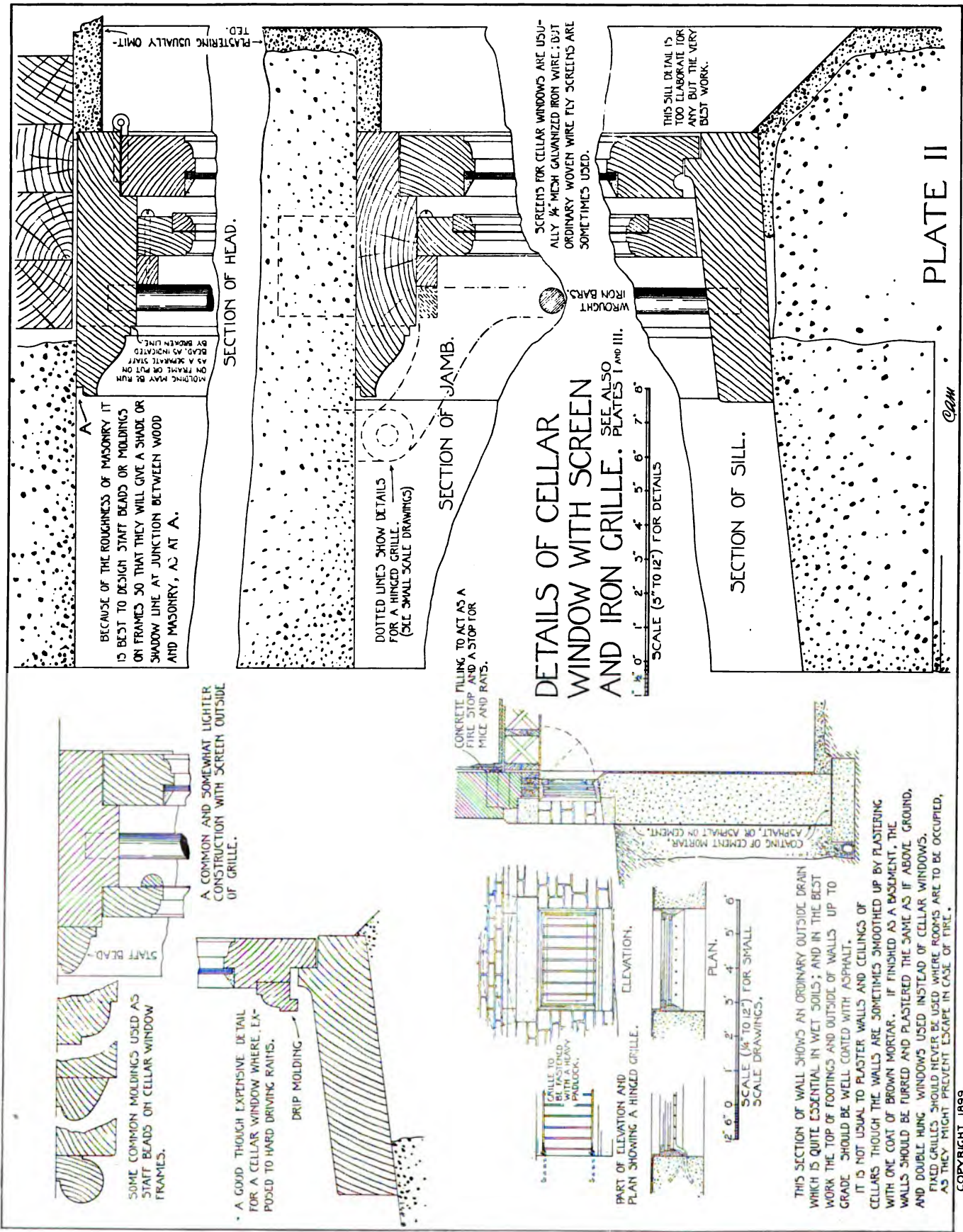
STONE SILLS NEAR GRADE DO NOT NEED A DRIP. IT IS ALSO CUSTOMARY TO MAKE THESE SILLS "SLIP SILLS", AND FREQUENTLY THEY ARE SIMPLY PIECES OF FLAG-STONE WITH THE FACE EDGES DRESSED AS THE WORK MAY REQUIRE (SEE PLATE III).

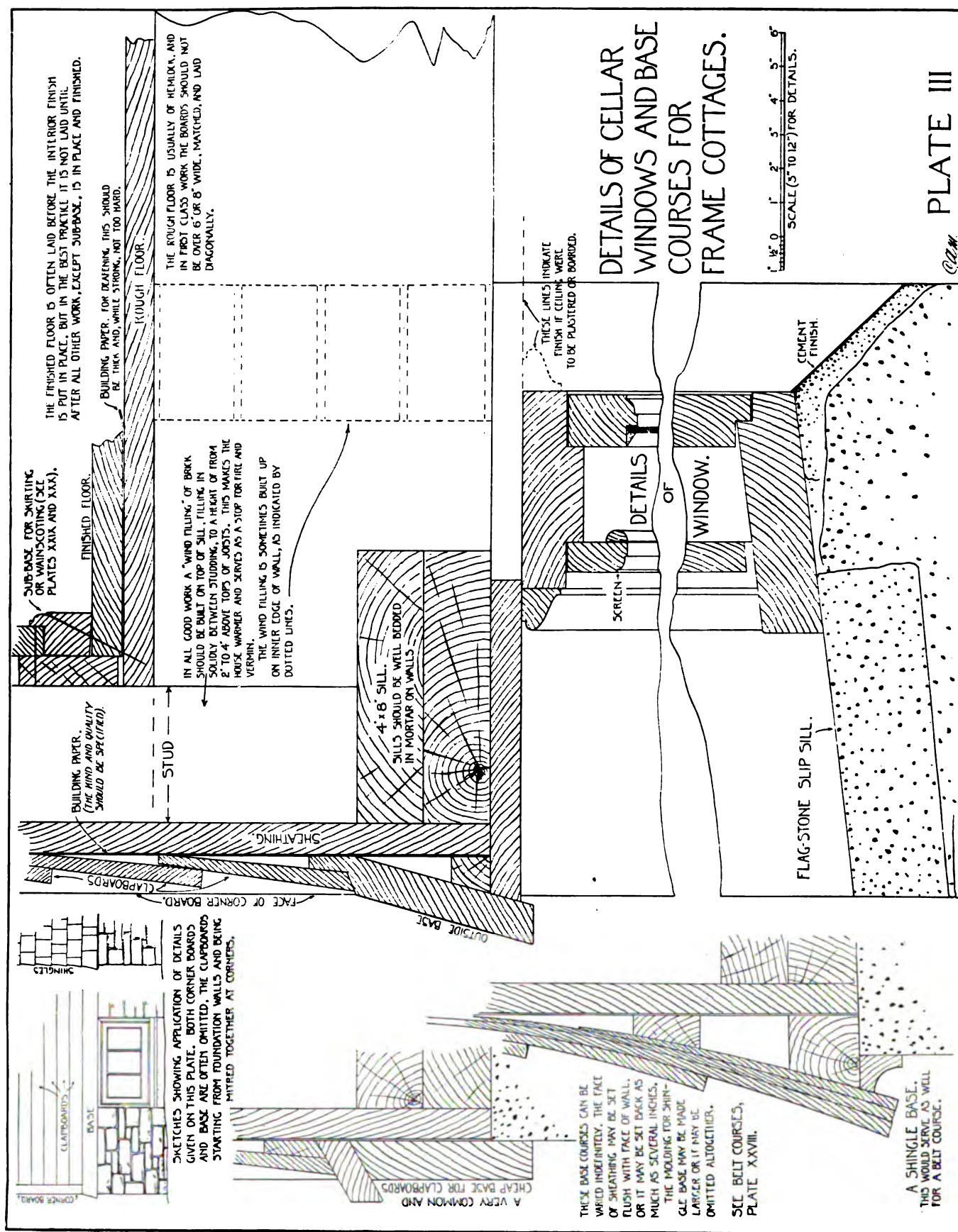
DETAILS OF AN ORDINARY CELLAR WINDOW IN A STONE WALL.

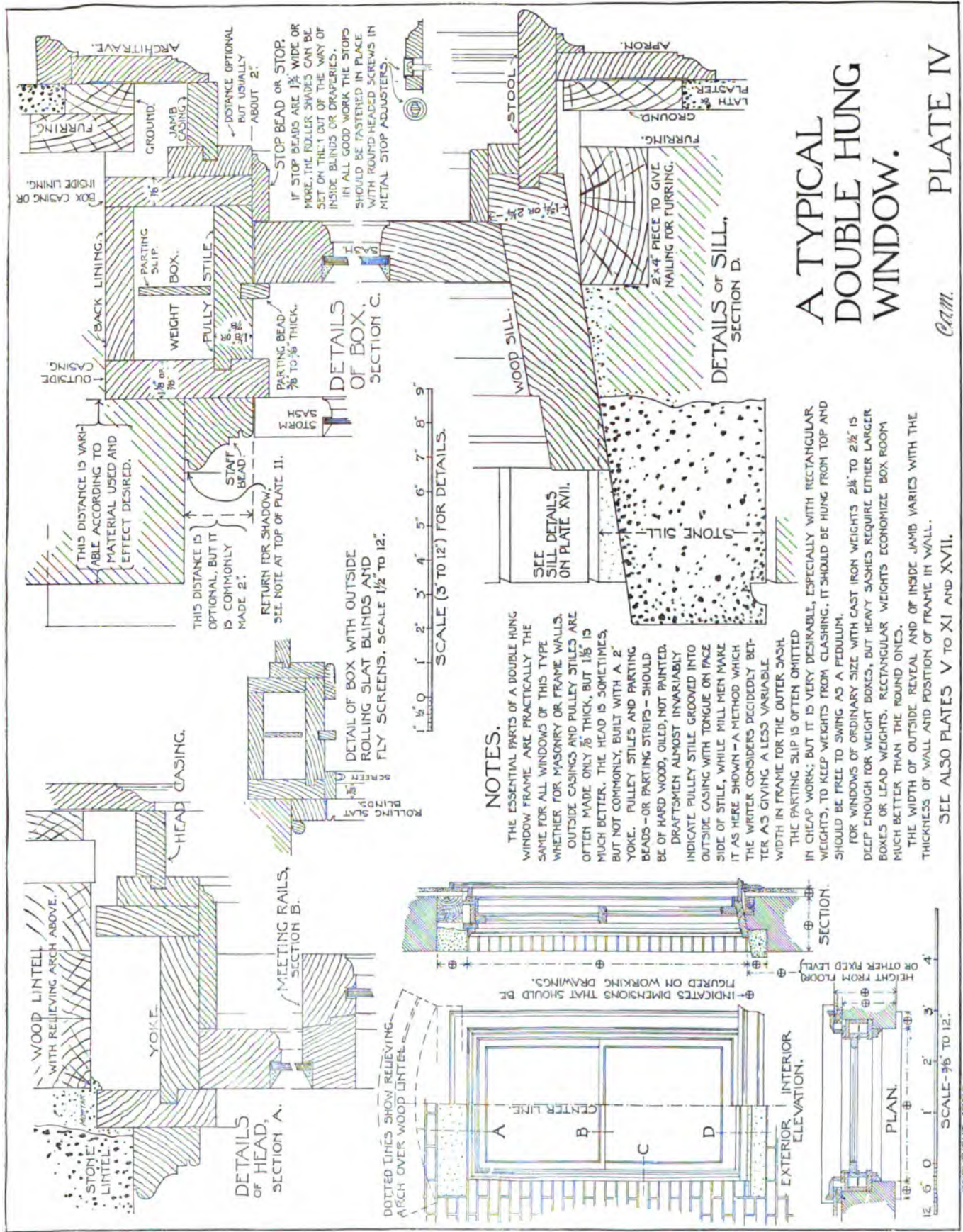
IN A BRICK WALL THE DETAILS WOULD BE THE SAME, THOUGH A BRICK ARCH MIGHT BE USED INSTEAD OF THE STONE LINTEL.

PLATE I.

C.A.M.

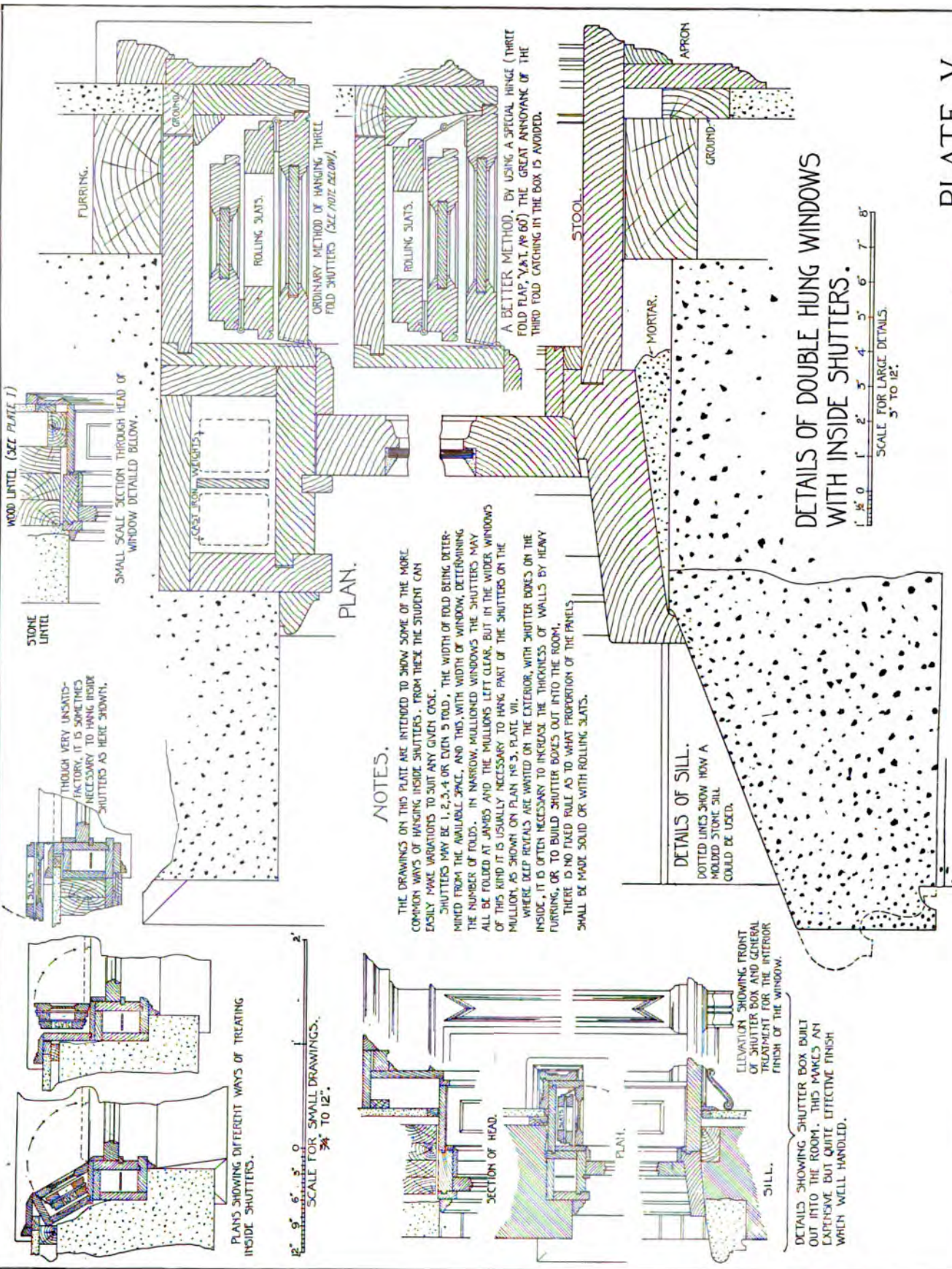






A TYPICAL DOUBLE HUNG WINDOW.

PLATE IV



NOTES.

THE DRAWINGS ON THIS PLATE ARE INTENDED TO SHOW SOME OF THE MORE COMMON WAYS OF HANGING INSIDE SHUTTERS. FROM THESE THE STUDENT CAN EASILY MAKE VARIATIONS TO SUIT ANY GIVEN CASE.

SHUTTERS MAY BE 1, 2, 3, 4 OR EVEN 5 FOLD. THE WIDTH OF FOLD BEING DETERMINED FROM THE AVAILABLE SPACE, AND THIS WITH WIDTH OF WINDOW, DETERMINING THE NUMBER OF FOLDS. IN NARROW MULLIONED WINDOWS THE SHUTTERS MAY ALL BE FOLDED AT JAMBS AND THE MULLIONS LEFT CLEAR, BUT IN THE WIDER WINDOWS OF THIS KIND IT IS USUALLY NECESSARY TO HANG PART OF THE SHUTTERS ON THE MULLIONS, AS SHOWN ON PLAN NO. 3, PLATE VIII.

WHERE DEEP REVEALS ARE WANTED ON THE EXTERIOR, WITH SHUTTER BOXES ON THE INSIDE, IT IS OFTEN NECESSARY TO INCREASE THE THICKNESS OF WALLS BY HEAVY FURRING, OR TO BUILD SHUTTER BOXES OUT INTO THE ROOM.

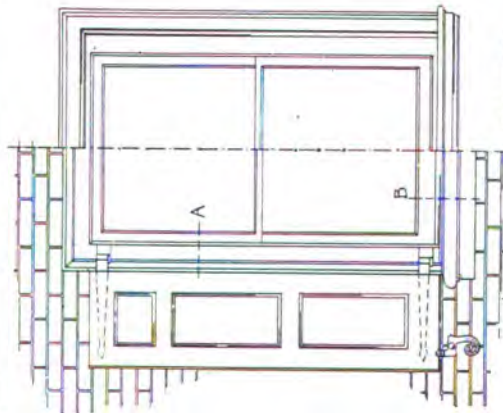
THERE IS NO FIXED RULE AS TO WHAT PROPORTION OF THE PAVES SHALL BE MADE SOLID OR WITH ROLLING SLATS.

DETAILS OF SILL.

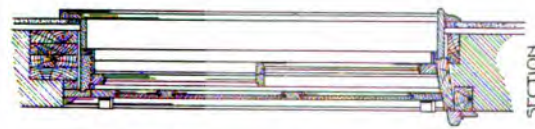
DOTTED LINES SHOW HOW A MOLDED STONE SILL COULD BE USED.

DETAILS OF DOUBLE HUNG WINDOWS WITH INSIDE SHUTTERS.

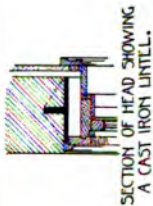
1" 2" 3" 4" 5" 6" 7" 8"
SCALE FOR LARGE DETAILS.
3" TO 12".



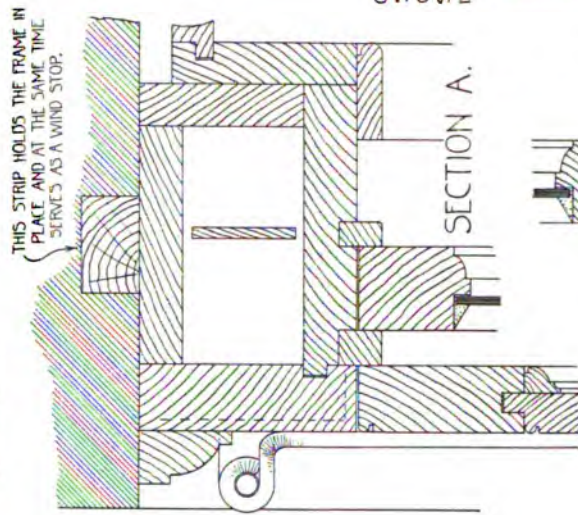
EXTERIOR ELEVATION



INTERIOR ELEVATION

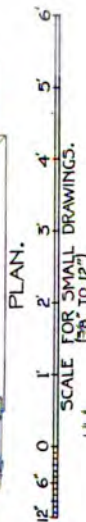


SECTION OF HEAD SHOWING A CAST IRON LINTEL.



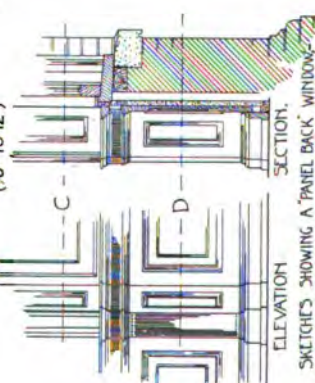
SECTION A.

THIS STRIP HOLDS THE FRAME IN PLACE AND AT THE SAME TIME SERVES AS A WIND STOP.



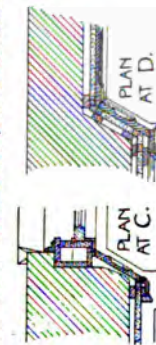
PLAN.

SCALE FOR SMALL DRAWINGS.
(1/8" TO 1/2")

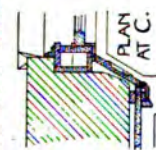


ELEVATION

SKETCHES SHOWING A 'PANEL BACK' WINDOW FROM AN OLD EXAMPLE. THE DETAILS OF THIS WORK CAN BEST BE STUDIED UNDER THE HEAD OF 'WAINSCOTING' (SEE PLATES XXIX & XXX).

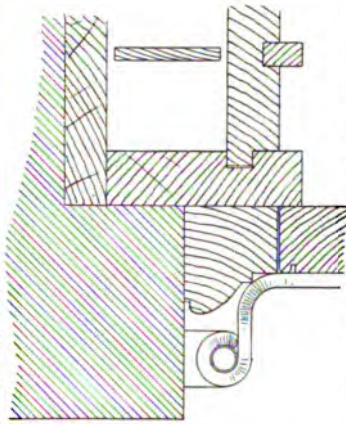


PLAN AT D.



PLAN AT C.

THE SECTION OF BOX SHOWN ABOVE IS A DETAIL THAT IS QUITE COMMON IN SOME PARTS OF EASTERN PENNSYLVANIA. THE 1 3/4" PULLEY STILE IS OBJECTIONABLE BECAUSE IT REQUIRES SUCH LARGE PULLEYS TO CARRY THE WEIGHTS BACK TO THE MIDDLE OF THE BOX. THE SECTION SHOWN BELOW, WHERE STAIR BEAD IS FORMED TO RECEIVE SHUTTER, IS MUCH BETTER.



SECTION B.

THIS JOINT SHOULD BE PUT TOGETHER WITH WHITE LEAD PAINT.

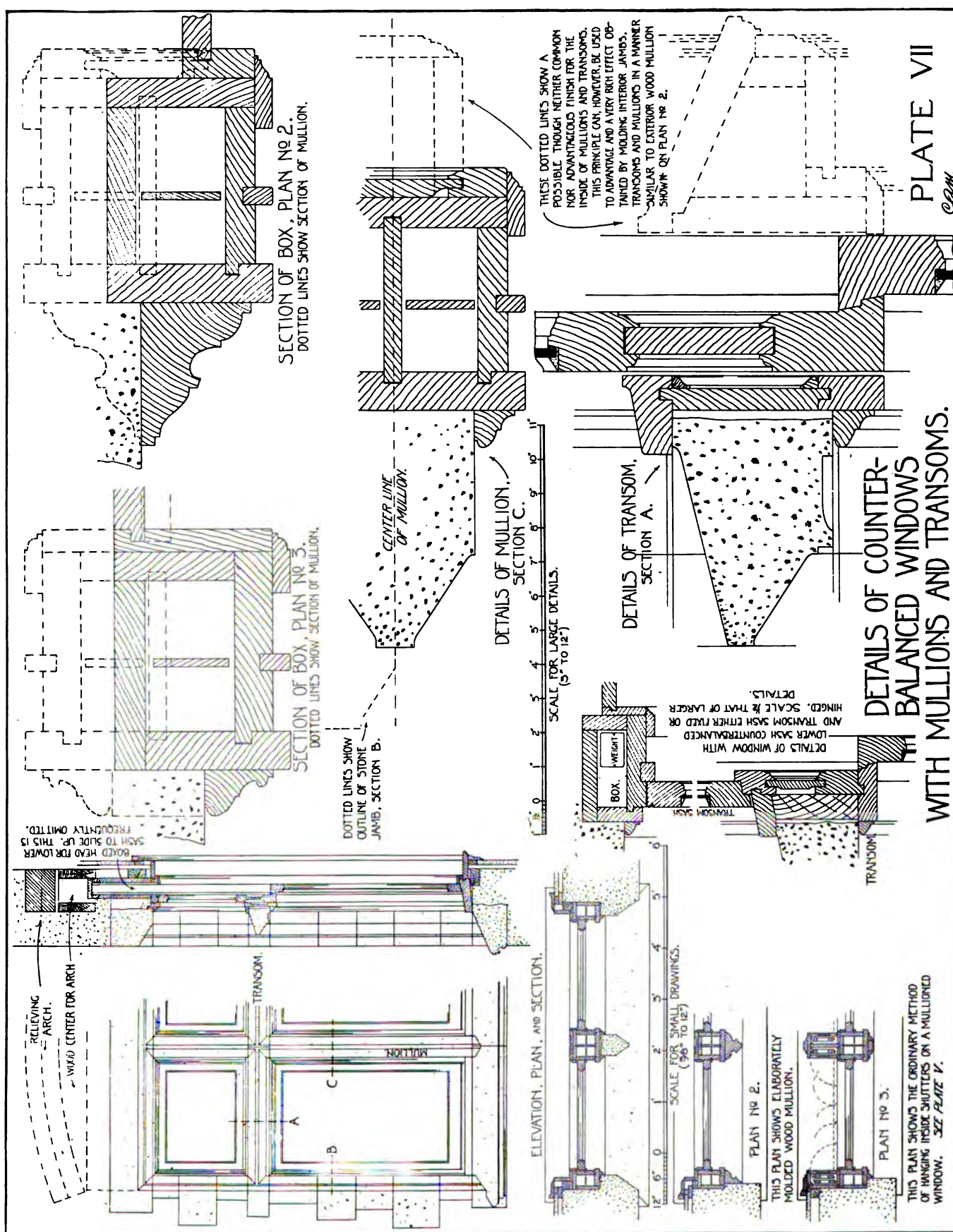
THE OUTSIDE WINDOW SILL MAY BE MADE PERFECTLY PLAIN AS SHOWN BY DOTTED LINES, OR IT MAY BE INDISTINGUISHABLY ELABORATED, ACCORDING TO THE CHARACTER AND REQUIREMENTS OF THE DESIGN.

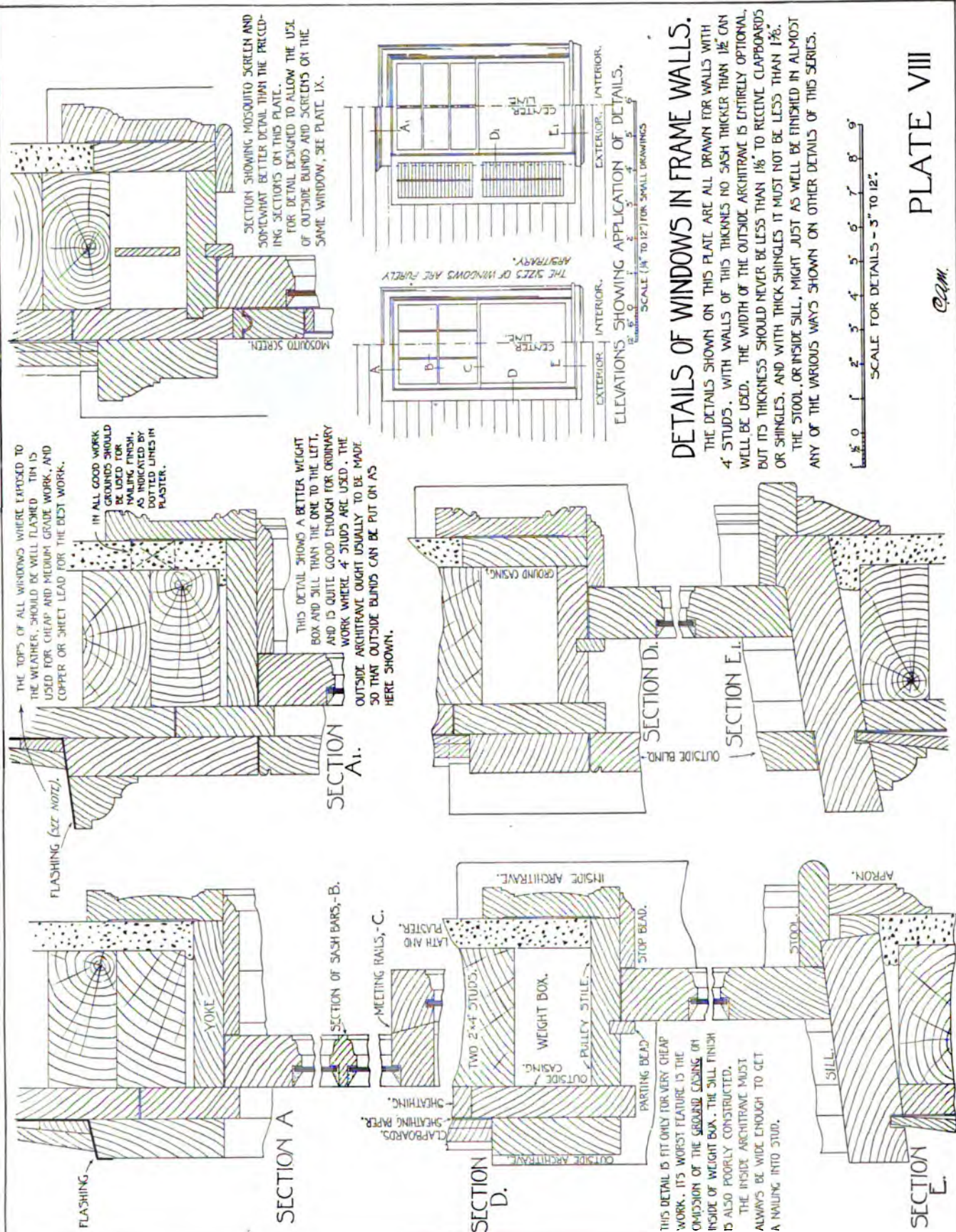
WINDOWS WITH OUTSIDE SHUTTERS.

THE PRINCIPAL DETAILS ON THIS PLATE SHOW AN OLD FASHIONED 'PLANK FRONT' FRAME. THIS TYPE OF FRAME IS QUITE CHARACTERISTIC OF OLD COLONIAL WORK ABOUT PHILA.; AND ALTHOUGH IT IS USED WITH ANY OF THE ARCHES, LINTELS AND STONE SILLS COMMON TO THAT PERIOD, IT IS FREQUENTLY USED WITH WOOD SILLS AND WITHOUT VISIBLE LINTEL, AS HERE SHOWN. THE SHUTTERS HAVE PANELS FLUSH ON THE OUTSIDE AND MOLDED ON THE INSIDE, AND THE HINGES SHOULD ALWAYS BE MADE SO THAT SHUTTERS WILL OPEN OUT FLAT AGAINST THE FACE OF THE WALL. OUTSIDE SHUTTERS CAN NOT BE USED ON HINGED WINDOWS THAT OPEN OUT.



SCALE FOR DETAILS.
(1/8" TO 1/2")



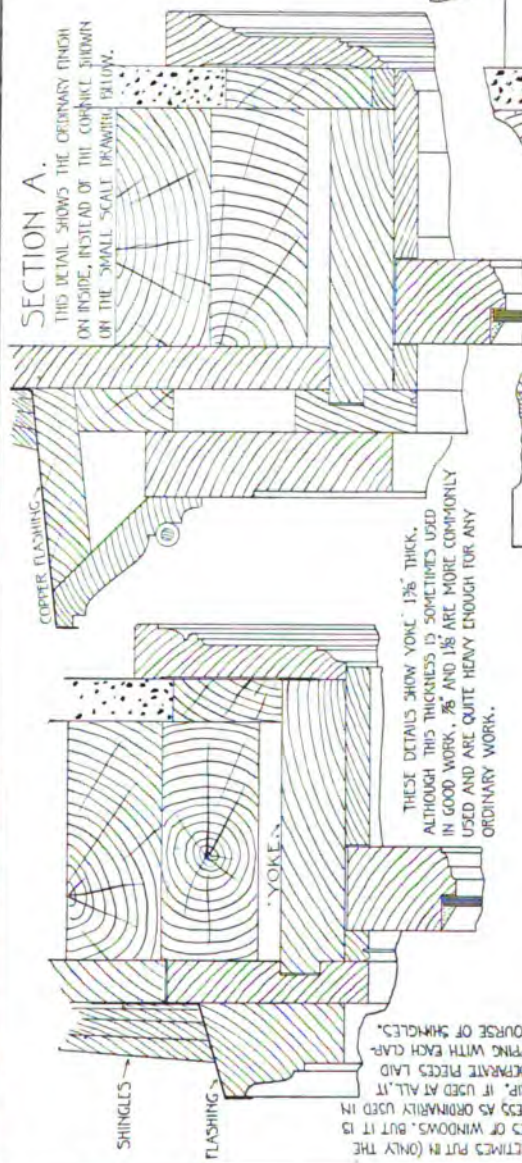


DETAILS OF WINDOWS IN FRAME WALLS.

THE DETAILS SHOWN ON THIS PLATE ARE ALL DRAWN FOR WALLS WITH 4" STUDS. WITH WALLS OF THIS THICKNESS NO SASH THICKER THAN 1 1/2" CAN WELL BE USED. THE WIDTH OF THE OUTSIDE ARCHITRAVE IS ENTIRELY OPTIONAL, BUT ITS THICKNESS SHOULD NEVER BE LESS THAN 1 1/8" TO RECEIVE CLAPBOARDS OR SHINGLES, AND WITH THICK SHINGLES IT MUST NOT BE LESS THAN 1 3/8". THE STOOD OR INSIDE SILL, MIGHT JUST AS WELL BE FINISHED IN ALMOST ANY OF THE VARIOUS WAYS SHOWN ON OTHER DETAILS OF THIS SERIES.

SECTION A.

THIS DETAIL SHOWS THE ORDINARY FINISH ON INSIDE, INSTEAD OF THE CORNICE SHOWN ON THE SMALL SCALE DRAWING BELOW.


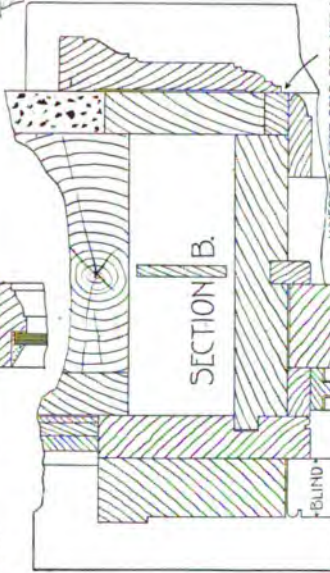


FLASHING IS SOMETIMES PUT IN (ONLY THE BEST WORK) AT SIDES OF WINDOWS, BUT IT IS PRACTICALLY WASTED AS ORIGINALLY USED IN A LONG SINGLE STRIP, IF USED AT ALL. IT SHOULD BE IN SEPARATE PIECES LAID AND OVERLAPPING WITH EACH GAP. BOARD OR COURSE OF SHINGLES.

A1, DETAILS OF CORNICE OVER TOP OF INTERIOR ARCHITRAVE. BOTH THE DESIGN AND THE CONSTRUCTION OF SUCH A CORNICE MAY BE VARIED INDEFINITELY.

SECTION SHOWING
PICTURE MOLDING AS A
FINISH AT TOP OF ARCHITRAVE.

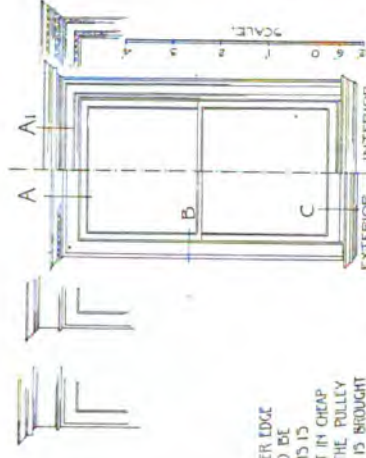
SECTION B.



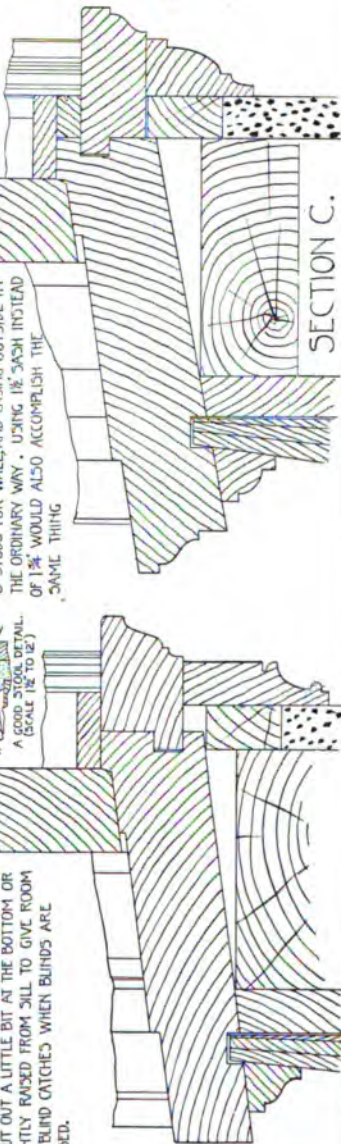
BY INSERTING A 7/8" PIECE HERE
ADDITIONAL SPACE IS GIVEN SO
THAT IT IS POSSIBLE TO HAVE
BOTH BLINDS AND MOSQUITO
SCREEN OUTSIDE OF EACH.
THE SPACE IS STILL SO NARROW, HOWEVER,
THAT THE SCREEN WOULD EITHER HAVE TO
BE CUT OUT A LITTLE BIT AT THE BOTTOM OR
SLIGHTLY RAMSD FROM SKILL TO GIVE ROOM
FOR BLIND CATCHES WHEN BLINDS ARE
CLOSED.

IN THIS DETAIL EXTRA WIDTH IS GIVEN TO THE PULLEY STILE BY SETTING CASING OUTSIDE OF SHEATHING AND IN THIS WAY MAKING A SAMPLE ROOM FOR BOTH OUTSIDE BLINDS AND SCREENS. THE SAME THING COULD BE ACCOMPLISHED MORE SATISFACTORILY BY USING 16" STUDS FOR WALL, AND CASING OUTSIDE IN THE ORDINARY WAY. USING 1/2" CASH INSTEAD OF 1 1/4" WOULD ALSO ACCOMPLISH THE SAME THING.

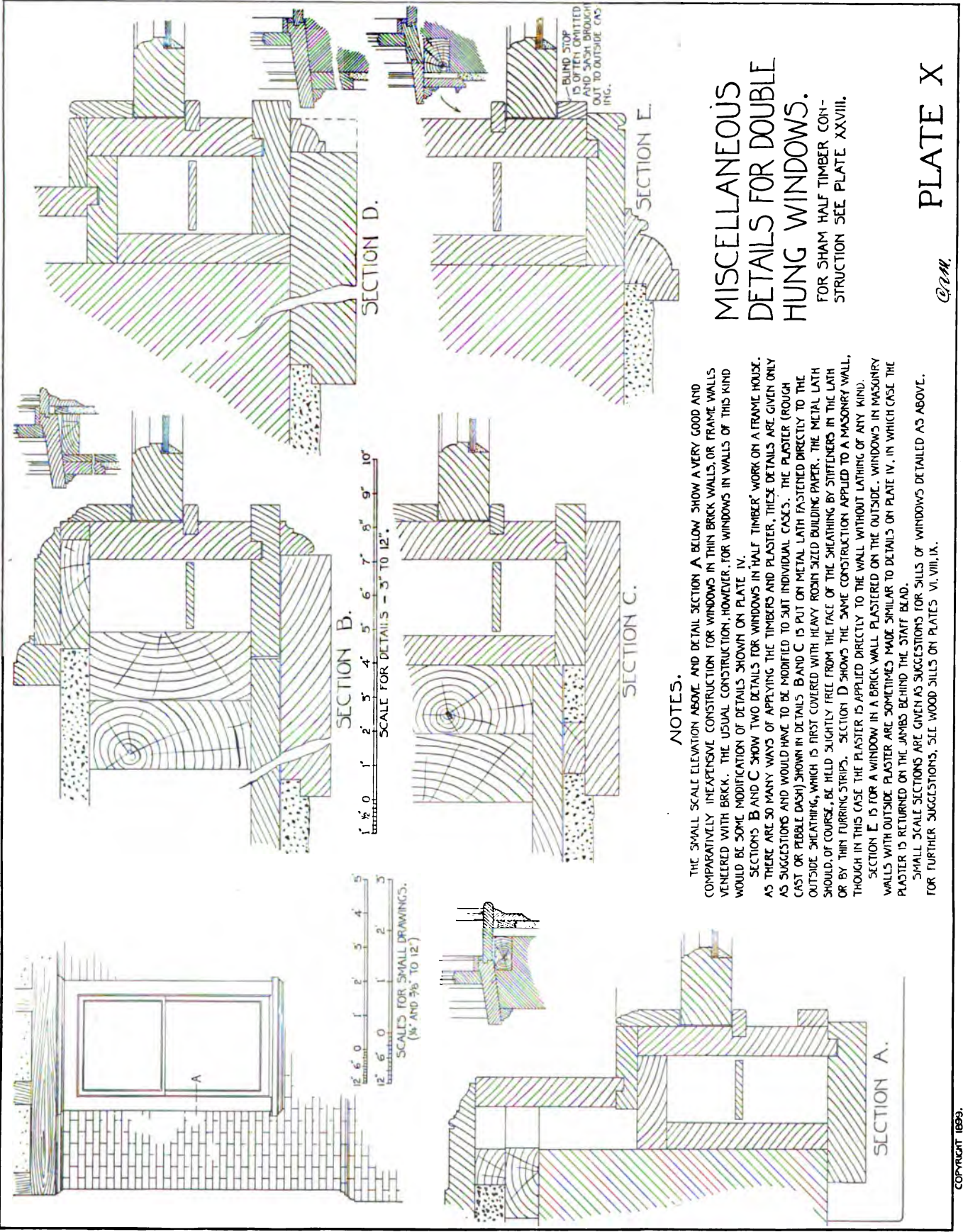
A GOOD STOOL DETAIL
(SCALE 1/2" TO 12")

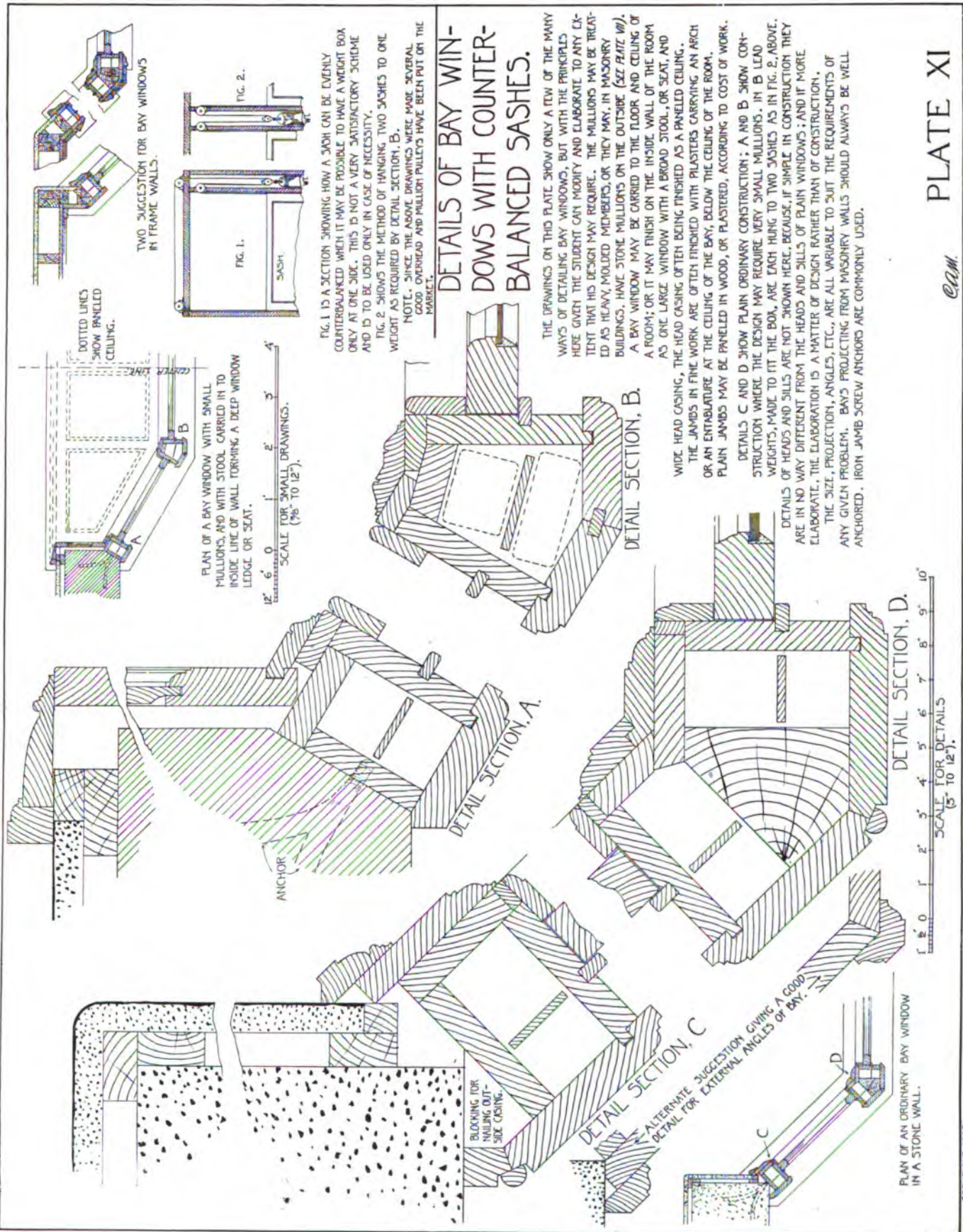


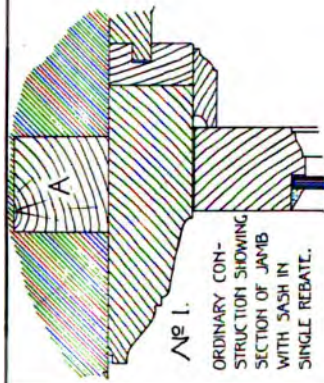
SECTION C.



SCALE FOR DETAILS - 3" TO 12"

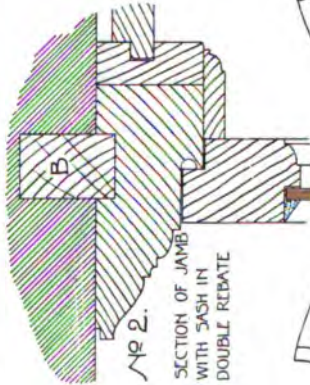






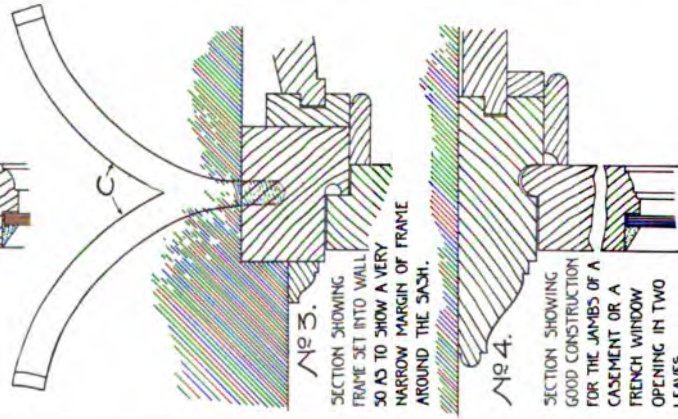
№ 1.

ORDINARY CONSTRUCTION SHOWING SECTION OF JAMB WITH SASH IN SINGLE REBATE.



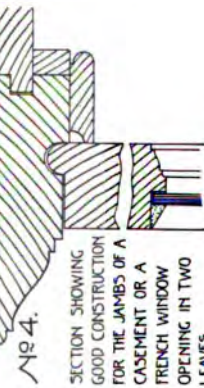
№ 2.

SECTION OF JAMB WITH SASH IN DOUBLE REBATE



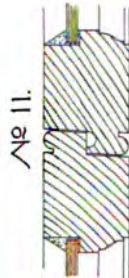
№ 3.

SECTION SHOWING FRAME SET INTO WALL SO AS TO SHOW A VERY NARROW MARGIN OF FRAME AROUND THE SASH.



№ 4.

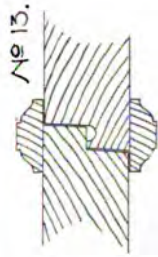
SECTION SHOWING GOOD CONSTRUCTION FOR THE JAMBS OF A CASEMENT OR A FRENCH WINDOW OPENING IN TWO LEAVES.



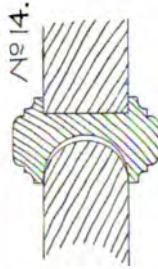
№ 11.



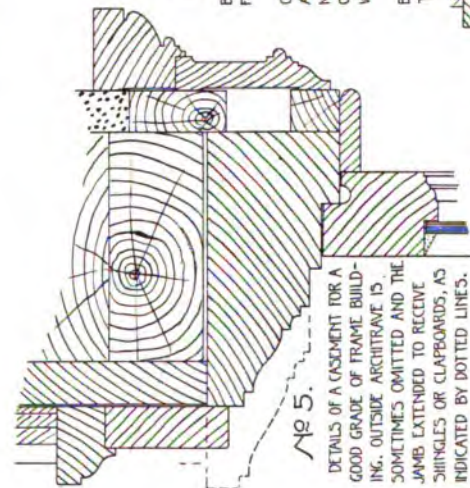
№ 12.



№ 13.

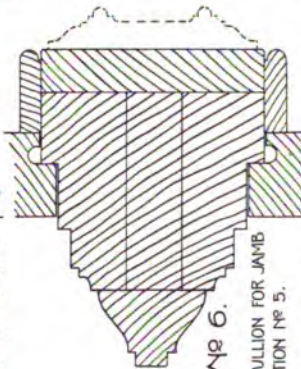


№ 14.



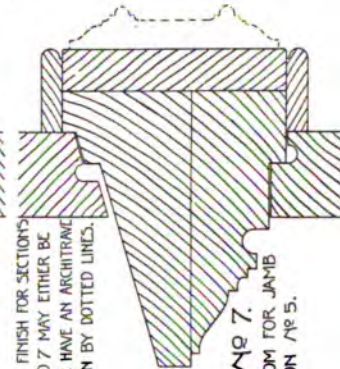
№ 5.

DETAILS OF A CASEMENT FOR A GOOD GRADE OF FRAME BUILDING. OUTSIDE ARCHITRAVE IS SOMETIMES OMITTED AND THE JAMB EXTENDED TO RECEIVE SHINGLES OR CLAPBOARDS, AS INDICATED BY DOTTED LINES.



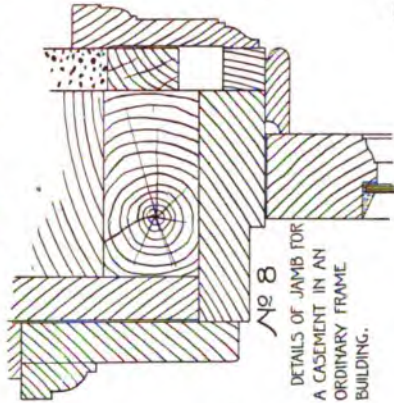
№ 6.

MULLION FOR JAMB SECTION № 5.



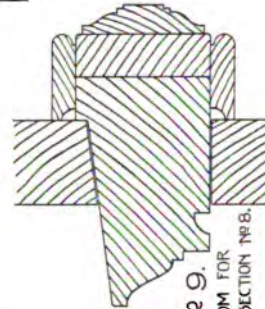
№ 7.

TRANSOM FOR JAMB SECTION № 5.



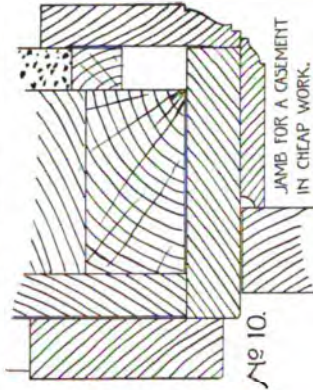
№ 8.

DETAILS OF JAMB FOR A CASEMENT IN AN ORDINARY FRAME BUILDING.



№ 9.

TRANSOM FOR JAMB SECTION № 8.



№ 10.

JAMB FOR A CASEMENT IN CHEAP WORK.

DETAILS OF CASEMENT WINDOWS OPENING OUTWARD.

NOTES.

THE ONE GREAT OBJECTION TO CASEMENT WINDOWS IS THAT IT IS VERY DIFFICULT TO MAKE THEM SECURE AGAINST WIND AND RAIN. THIS IS LESS DIFFICULT WITH CASEMENTS OPENING OUTWARD THAN WITH THOSE OPENING INWARD. WHERE THE CHARACTER OF THE WORK WILL ADMIT, IT IS BEST TO SET SASHES IN A DOUBLE REBATE; AND THERE SHOULD ALWAYS BE A GROOVE AT THE SIDE, EITHER IN JAMB OR SASH, SO THAT WATER BEATING IN WILL BE CARRIED DOWN TO THE SILL. THE TROUBLE WITH A DOUBLE REBATE IS THAT IT IS HARD TO GET A LOCK THAT IS BOTH SMALL ENOUGH FOR THE SASH AND HAS THE KEY OR TURN FAR ENOUGH BACK TO COME INSIDE OF THE STOP BEAD: HENCE CARE SHOULD BE TAKEN TO MAKE SASH DEEP ENOUGH AND REBATES NOT TOO DEEP FOR LOCKS.

SASHES FOR CASEMENTS REQUIRE TO BE HEAVIER THAN FOR COUNTERBALANCED WINDOWS, BECAUSE, BEING HINGED AT SIDES (USUALLY), THERE IS MORE STRAIN ON THEM. THE SIZES SHOWN HERE ARE SUITABLE FOR SMALL SASHES ONLY.

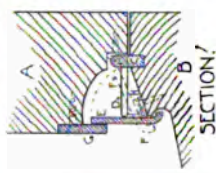
SECTIONS 1, 2, 3, 4 ARE FOR CASEMENTS IN MASONRY WALLS, AND A, B, C SHOW VARIOUS METHODS OF FASTENING THEM INTO WALLS. C BEING AN IRON JAMB-SCREW ANCHOR. SECTIONS 5 TO 10 INCLUDE ARE DETAILS FOR CASEMENTS IN FRAME WALLS. SECTIONS 11, 12, 13, 14 ARE MEETING STILES FOR CASEMENTS OR FRENCH WINDOWS HUNG IN TWO LEAVES. SECTION 14 REQUIRES THAT BOTH SASHES BE OPENED AND CLOSED TOGETHER, AND THE CRESCENT SHAPED SPACE IS NECESSARY TO ALLOW FOR THE SLIGHT THROW FORWARD GIVEN BY THE HINGES WHICH TURN ON A CENTER OUTSIDE OF THE SASHES.

INTERIOR AND EXTERIOR DETAILS MAY BE VARIED INDEFINITELY TO SUIT THE GENERAL DESIGN. SILLS MAY BE THE SAME AS SHOWN ON OTHER PLATES OF THIS SERIES, THERE BEING NO ESSENTIAL DIFFERENCE BETWEEN SILLS FOR DOUBLE HUNG WINDOWS AND FOR OUTWARD OPENING CASEMENTS.

DETAILS AND DESCRIPTION FROM THE
 "DICTIONARY OF ARCHITECTURE,"
 ISSUED BY THE ARCHITECTURAL PUBLICATION
 SOCIETY, LONDON, ENG.

"A NEW KIND OF WATER BAR FOR FRENCH
 CASEMENTS POSSESSING MANY ADVANTAGES, AND
 WHICH HAS PROVED SUCCESSFUL IN USE FOR SOME
 YEARS. IT IS ALSO APPLICABLE TO EXTERNAL DOORS.
 AS WHEN THE WATER BAR IS FORCED DOWN BY THE
 COVER FILLET, THE APPARATUS OFFERS NO IMPEDIMENT
 TO THE FOOT, AND WHEN RAISED IS ABSOLUTELY
 WEATHER-TIGHT. A. SECTION OF A 2 1/2" CASEMENT.
 B. SILL. C. METAL BEAD. WITH OPENINGS FOR AN ARM, D.
 TO MOVE THROUGH, AS SHOWN IN PLAN. D. METAL ARM
 FIXED TO CASEMENT (ONE IN THE CENTER OF EACH CASEMENT).
 TO LIFT THE WATER BAR. E. IN CLOSING THE CASEMENT.
 E. METAL WATER BAR, HINGED AT H, LIFTED BY THE ARM,
 D, AND FORCED BY IT AGAINST G, A METAL COVER
 FILLET FASTENED TO THE OUTSIDE OF THE CASEMENT.
 F. SHOWS THE POSITION OF THE WATER BAR WHEN THE CASEMENT IS OPEN, TO
 ALLOW THE COVER FILLET, G, TO PASS OVER IT. THIS ARRANGEMENT IS FOUND
 IN PRACTICE TO BE MOST EFFICIENT, AND TO KEEP FOR A LONG TIME IN PERFECT
 WORKING ORDER."

IT WOULD SEEM THAT THE ABOVE DEVICE MIGHT BE
 IMPROVED AND STRENGTHENED BY MAKING THE BEAD
 C A PART OF A METAL PLATE COVERING THE TOP OF
 THE WOOD SILL, AS SHOWN IN THE ADJOINING
 SKETCH.



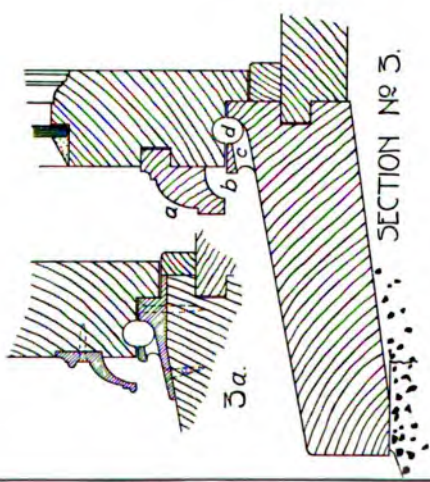
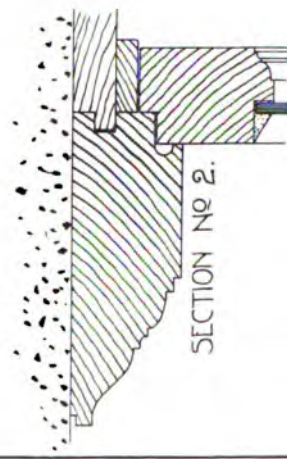
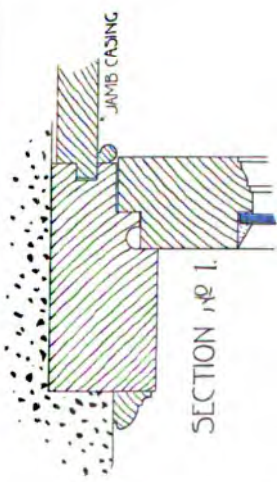
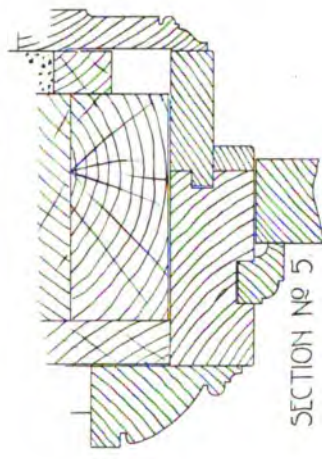
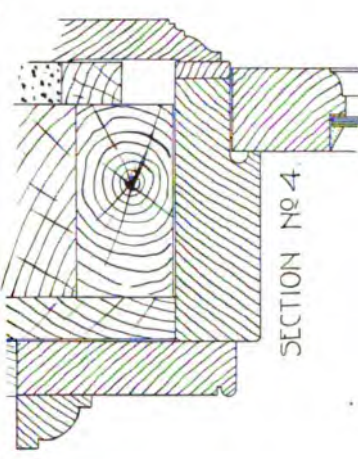
THIS DRAWING SHOWS A SECTION OF A
 WEATHER STRIP MADE BY ENOCH ROBINSON,
 BOSTON, MASS. WHEN THE CASEMENT IS
 OPENED THE WATER BAR K IS LIFTED AND KEPT
 UP BY THE PLATE L WHICH RUNS THE FULL LENGTH
 OF THE SILL. THIS COMBINATION ITSELF AS AN
 EXCELLENT DEVICE WHERE THE WINDOW OR
 DOOR DOES NOT OPEN FAR ENOUGH TO
 THROW THE WATER BAR OFF THE PLATE AT THE HINGE SIDE OF THE SASH.
 THIS DIFFICULTY COULD, HOWEVER, BE EASILY MET BY EXTENDING THE
 SILL PLATE AT THAT END IN SUCH A WAY AS TO FORM A TRACK TO HOLD
 THE BAR UP THROUGH ANY ARC IN WHICH IT MAY BE DESIRABLE TO
 SWING THE SASH OR DOOR.



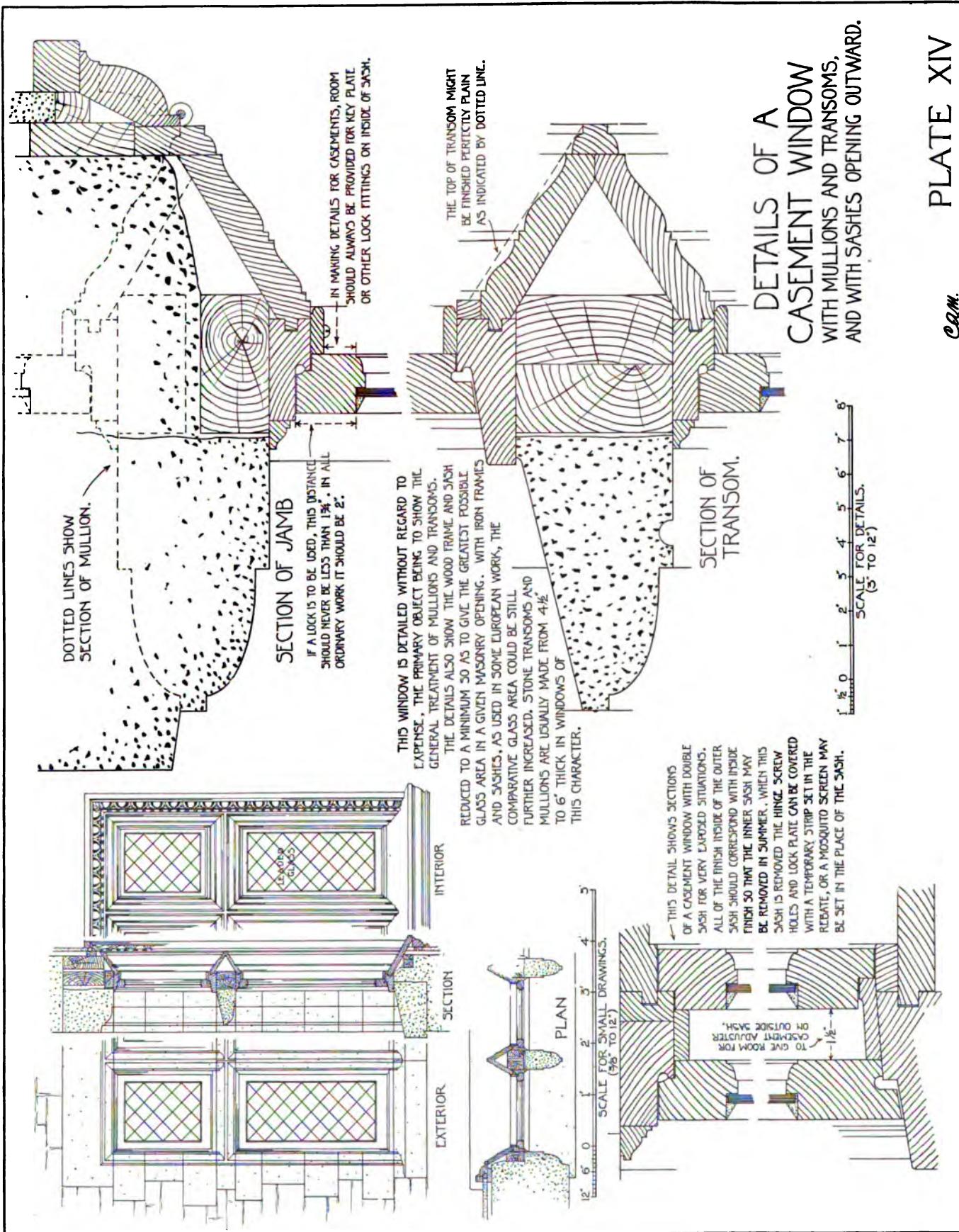
DETAILS OF CASEMENT WINDOWS OPENING IN.

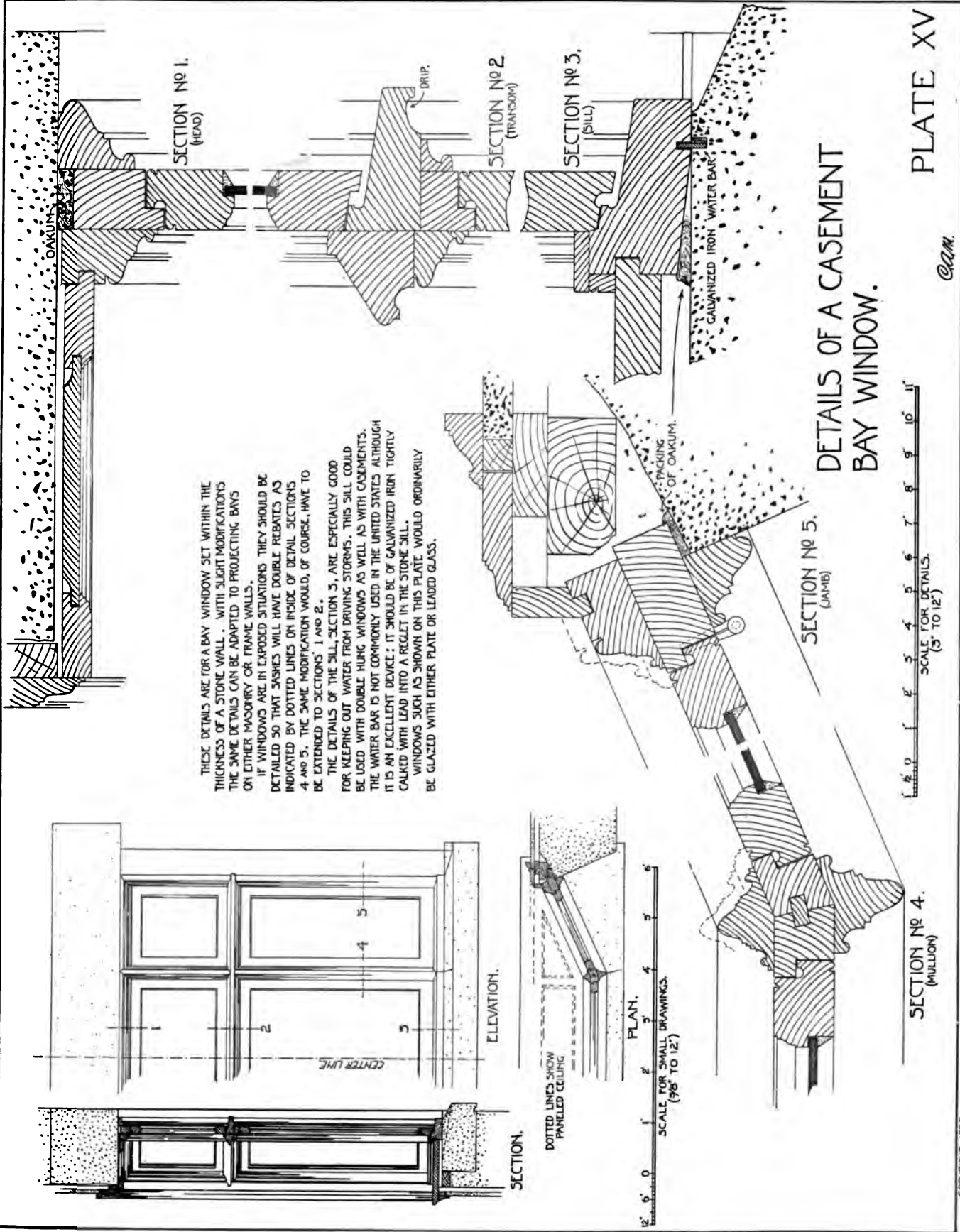


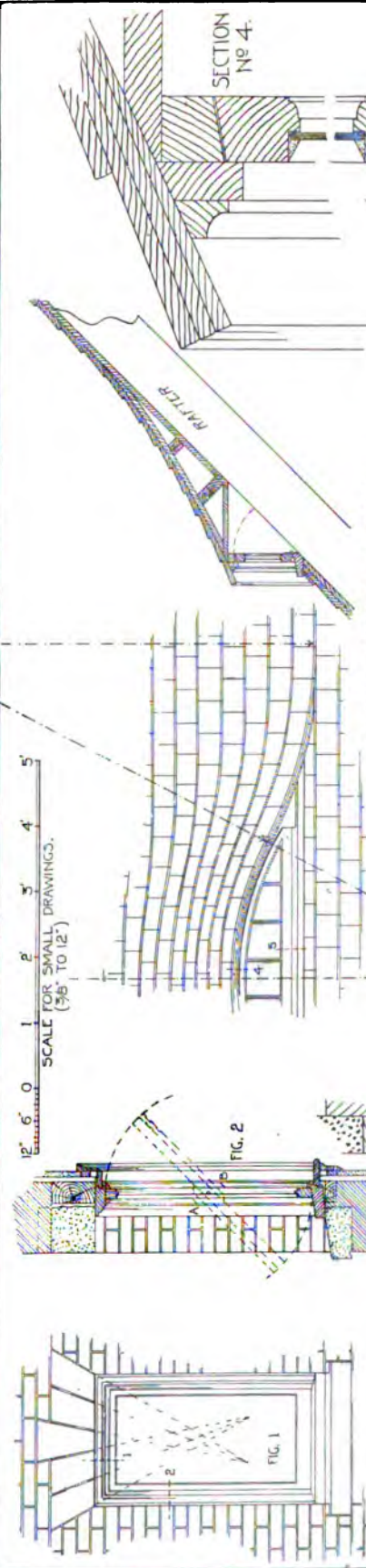
READ NOTES ON PLATE XII. SEE ALSO PLATES XIV, XV & XVI.



NOTES. THE SPECIAL DIFFICULTY ALWAYS MET WITH IN CASEMENTS OPENING IN IS THAT IT IS NEXT TO IMPOSSIBLE TO MAKE
 SILLS THAT ARE PERFECTLY WEATHER-PROOF. SECTIONS 1, 2, 4, AND 5 SHOW VARIOUS JAMB SECTIONS ADAPTABLE TO DIFFERENT KINDS
 OF WORK. SILL SECTION NO 6 IS A GOOD ENOUGH FORM FOR CHEAP WORK OR WHERE WINDOWS ARE WELL SHELTERED. NO 3 IS
 A MORE ELABORATE AND CAREFULLY STUDIED SECTION: THE DRIP MOLDING α CARRIES THE WATER OUT AND AWAY FROM THE JOINT AT
 THE BOTTOM OF SASH. THE RAISED LIP β ON SILL, TENDS TO TURN BACK WATER THAT THE WIND WOULD OTHERWISE DRIVE IN UNDER THE
 SASH, WHILE ANY WATER THAT MAY FINALLY GET INSIDE OF THIS POINT IS COLLECTED IN THE GROOVE γ AND CARRIED OUT THROUGH THE
 HOLES ϵ WHICH ARE 3/8" IN DIAMETER AND ABOUT 5" OR 6" APART. IT WOULD BE AN IMPROVEMENT IF THE ESSENTIAL FEATURES OF NO 3
 COULD BE MADE IN STEEL OR BRONZE AS SUGGESTED BY SECTION 3a.
 IN ENGLAND CASEMENTS ARE FREQUENTLY MADE WITH FRAMES AND SASHES OF IRON, AND THE FORMS OF CONSTRUCTION USED TO
 EXCLUDE WIND AND RAIN ARE SOMETIMES VERY ELABORATE.



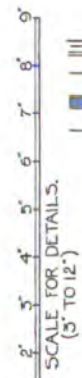




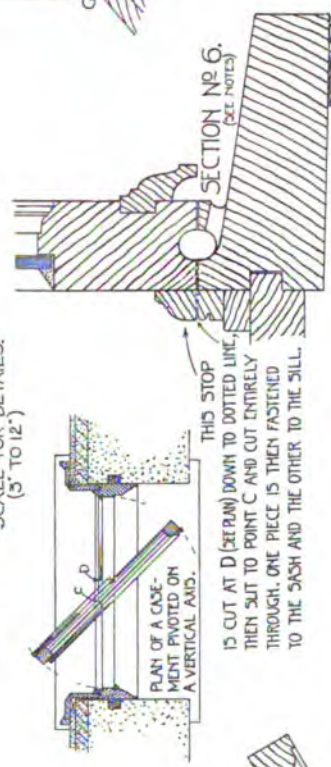
ELEVATION AND SECTION OF A CASEMENT PIVOTED ON A HORIZONTAL AXIS.

DETAILS OF AN EYEBROW WINDOW.

AS ORDINARILY CONSTRUCTED, THESE WINDOWS ARE VERY UGLY; BUT IF THEY ARE CAREFULLY PROPORTIONED SO AS TO AVOID TOO MUCH HEIGHT AT THE MIDDLE, AND IF THE REVERSE CURVE IS CARRIED OUT TO DIE INTO THE ROOF WITHOUT A HUMP OR BREAK, THEY CAN BE MADE TO LOOK VERY WELL. THEIR ORDINARY USE IS TO LIGHT AND VENTILATE UNFINISHED ATTICS.

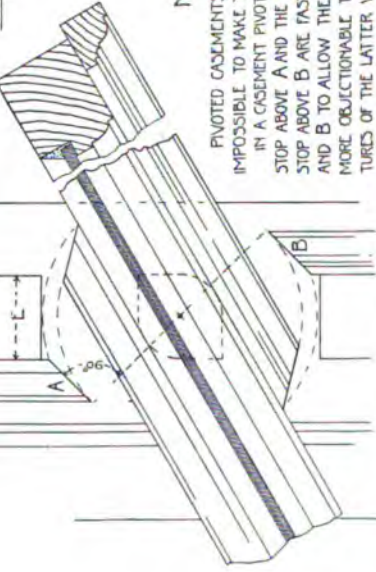


SECTION No. 2



SECTION No. 5.

LEAD OR COPPER FLASHING EXTENDING FROM F TO G.



SECTION No. 6.

(SEE NOTES)

THIS STOP IS CUT AT D (SEE PLAN) DOWN TO DOTTED LINE, THEN SUT TO POINT C AND CUT ENTIRELY THROUGH. ONE PIECE IS THEN FASTENED TO THE SASH AND THE OTHER TO THE SILL.

DETAILS OF PIVOTED CASEMENTS AND EYEBROW DORMERS.

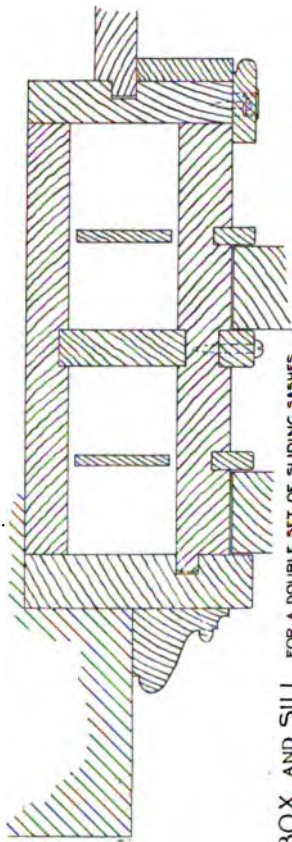
NOTES AND EXPLANATIONS.

PIVOTED CASEMENTS SHOULD NOT BE USED IN POSITIONS EXPOSED TO SEVERE STORMS OR COLD, AS IT IS PRACTICALLY IMPOSSIBLE TO MAKE THEM WEATHER-PROOF, ESPECIALLY ABOUT THE PIVOTS, IN WOODEN CONSTRUCTION. IN A CASEMENT PIVOTED ON THE HORIZONTAL AXIS, FIGS. 1 AND 2, THE STOP BEADS ARE CUT AT A AND B, AND THE OUTSIDE STOP ABOVE A AND THE INSIDE STOP BELOW B ARE FASTENED TO THE FRAME; WHILE THE OUTSIDE STOP BELOW A AND THE INSIDE STOP ABOVE B ARE FASTENED TO THE SASH, THE PROJECTING PART E OF FRAME BEING CUT AWAY BETWEEN POINTS A AND B TO ALLOW THE SASH TO TURN. - SEE DETAIL SECTION No. 3. CASEMENTS PIVOTED ON A VERTICAL AXIS ARE STILL MORE OBJECTIONABLE THAN THOSE PIVOTED ON A HORIZONTAL AXIS, BECAUSE THEY PRESENT ALL OF THE OBJECTIONABLE FEATURES OF THE LATTER WITH THE ADDITIONAL DIFFICULTY OF SILLS THAT MUST BE DESIGNED TO KEEP OUT WEATHER AND AT THE SAME TIME PERMIT ONE HALF OF THE SASH TO OPEN IN AND THE OTHER HALF TO OPEN OUT. SECTION No. 6 SHOWS A SILL DESIGNED FOR THIS PURPOSE; THE OTHER DETAILS FOR THIS WINDOW WOULD BE IN ALL ESSENTIALS THE SAME AS FOR THOSE PIVOTED ON A HORIZONTAL AXIS.

CIRCULAR OR ELLIPTICAL WINDOWS ARE LIKELY TO BE TROUBLESOME, SINCE IF PIVOTED THEY ARE NOT STORM PROOF, AND IF STATIONARY ARE OFTEN DIFFICULT OF ACCESS FOR CLEANING ON THE OUTSIDE. - MOREOVER, IT IS HARD TO BUILD THE LOWER HALF ON THE OUTSIDE SO THAT STORM WATER WILL BE CARRIED OFF AS BY THE SILL AND DRIP OF AN ORDINARY WINDOW.

SEE NOTES ON PLATES XII AND XIII

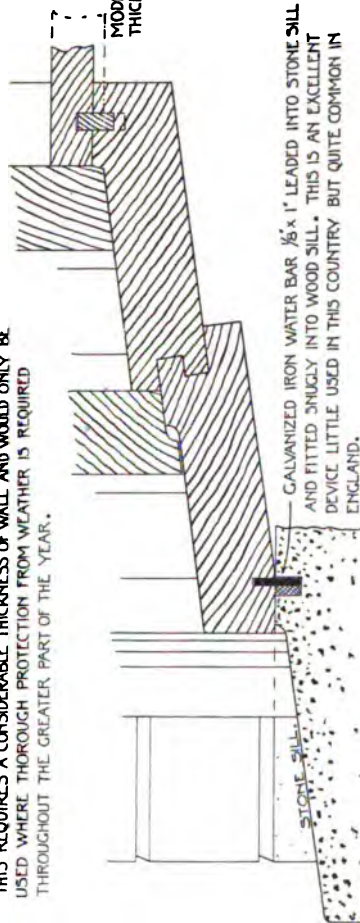
ORDINARY WINDOW WITH STORM SASH.



OUTSIDE CASING EXTENDED AND BUILT IN SOLID WITH MORTAR AND SPAWLS (OR BATS) TO STOP PENETRATING WINDS.

BOX AND SILL FOR A DOUBLE SET OF SLIDING SASHES. THIS REQUIRES A CONSIDERABLE THICKNESS OF WALL AND WOULD ONLY BE USED WHERE THOROUGH PROTECTION FROM WEATHER IS REQUIRED THROUGHOUT THE GREATER PART OF THE YEAR.

DOTTED LINES SHOW MODIFICATIONS FOR A THICKER STOOL.



GALVANIZED IRON WATER BAR $\frac{1}{8} \times 1$ " LEADED INTO STONE SILL AND FITTED SNUGLY INTO WOOD SILL. THIS IS AN EXCELLENT DEVICE LITTLE USED IN THIS COUNTRY BUT QUITE COMMON IN ENGLAND.

SCALE - 3' TO 12".

DOUBLE GLAZED SASHES.

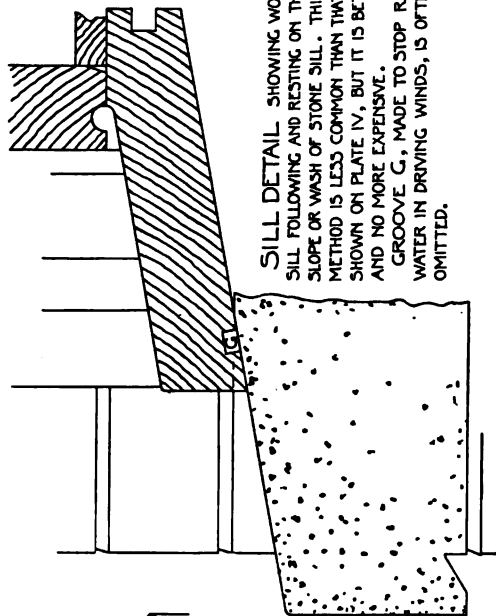


PUTTY ON BOTH SIDES OF SASH.

PUTTY OUTSIDE AND MOLDING INSIDE, BUT ALL GLASS BEDDED IN PUTTY

SASHES ARE SOMETIMES DOUBLE GLAZED AS A PROTECTION AGAINST COLD; BUT THIS IS NOT ADVISABLE WITH CLEAR GLASS, AS FINE DUST IS ALMOST SURE TO WORK IN BETWEEN INNER AND OUTER PANEES, THE GLASS "SWEATS" MORE OR LESS IN COLD WEATHER, AND BETWEEN DUST AND MOISTURE A THIN FILM GATHERS ON THE INNER SURFACES AND DESTROYS THE CLEARNESS OF THE GLASS. IF TINTED OR COLORED GLASS IS USED THE EFFECTS OF THE DUST AND MOISTURE ARE LESS APPARENT AND NOT LIKELY TO BE ANNOYING, IF GLAZING IS WELL DONE.

SILL DETAIL SHOWING WOOD SILL FOLLOWING AND RESTING ON THE SLOPE OR WASH OF STONE SILL. THIS METHOD IS LESS COMMON THAN THAT SHOWN ON PLATE IV, BUT IT IS BETTER AND NO MORE EXPENSIVE. GROOVE G, MADE TO STOP RAIN WATER IN DRIVING WINDS, IS OFTEN OMITTED.

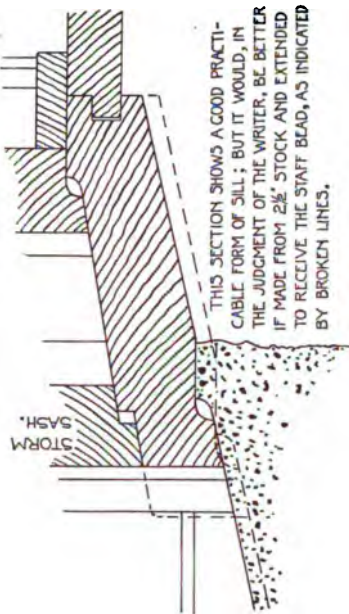


STORM RESISTING WINDOWS.

STORM SASHES COULD BE USED IN PLACE OF OUTSIDE SHUTTERS OR BUNDS WITH DETAILS ON PLATES VI, VII, AND IX.

STORM SASHES IF LARGE AND HINGED AT SIDE SHOULD BE $1\frac{1}{2}$ " THICK; BUT IF SMALL, HINGED AT TOP, OR NOT MOVABLE, $1\frac{3}{8}$ " IS HEAVY ENOUGH.

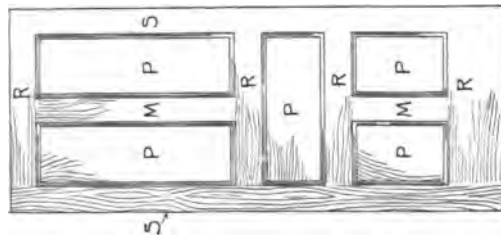
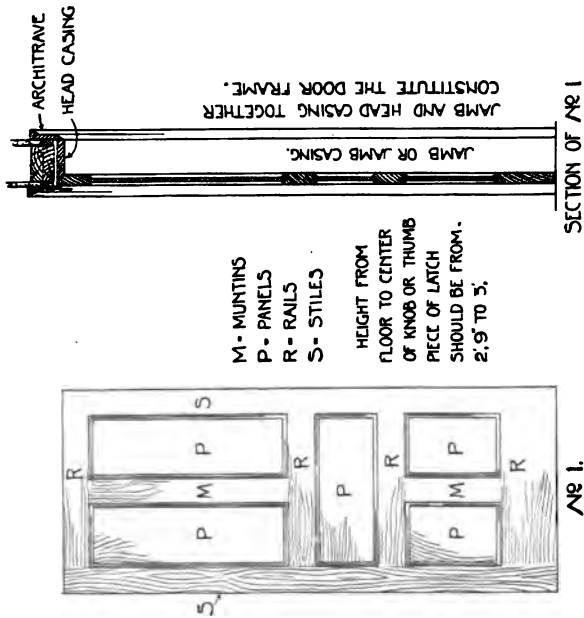
THIS SECTION SHOWS A GOOD PRACTICAL FORM OF SILL; BUT IT WOULD, IN THE JUDGMENT OF THE WRITER, BE BETTER IF MADE FROM $2\frac{1}{2}$ " STOCK AND EXTENDED TO RECEIVE THE STAFF BEAD, AS INDICATED BY BROKEN LINES.



@R.M.

PLATE XVII

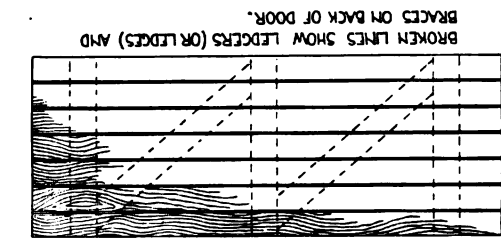
COPYRIGHT 1898.



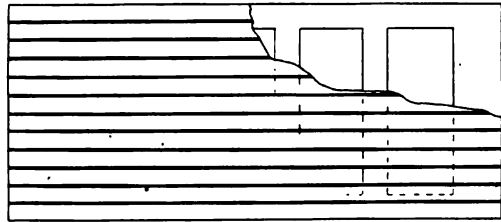
HEIGHT FROM
FLOOR TO CENTER
OF KNOB OR THUMB
PIECE OF LATCH
SHOULD BE FROM
2' 9" TO 3'

SECTION OF NO. 1

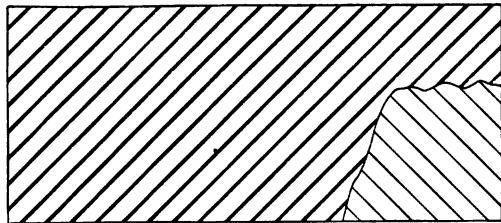
NO. 1.



NO. 2.



NO. 3.



NO. 4.

TYPES OF DOORS.

WITH GENERAL DISCUSSION.

NO. 1. THIS IS AN ORDINARY paneled door. THE MOST COMMON TYPE OF DOOR IN USE. THE NUMBER AND ARRANGEMENT OF PANELS MAY BE VARIED INDEFINITELY AT THE OPTION OF THE DESIGNER. IT IS DESIRABLE, HOWEVER, SO TO DESIGN IT THAT THE LOCK WILL COME OPPOSITE A PANEL AND THIS AVOID WEAKENING THE DOOR BY CUTTING OFF TENONS FOR LOCK. A GOOD DOOR SHOULD BE BLIND TENONED SO THAT ENDS OF TENONS WILL NOT SHOW ON EDGES OF DOOR.

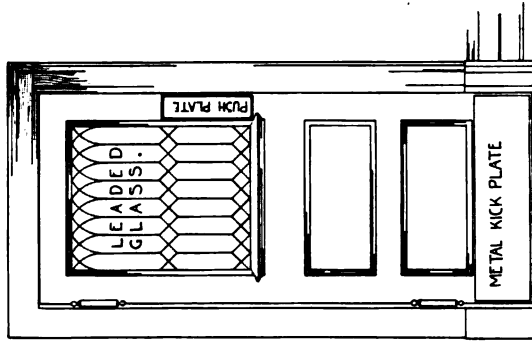
NO. 2. A LEDGED DOOR CONSISTING OF ORDINARY MATCHED BOARDS (USUALLY BEADED OR V/D) WITH LEDGERS (LEDGES) AND BRACES ON THE BACK. - NOT MUCH USED EXCEPT IN BOARD PARTITIONS OR SMALL CLOSETS IN CHEAP WORK.

NO. 3. A BATTEN DOOR WITH FRAMED UP CORE. THIS IS THE BEST METHOD OF CONSTRUCTING A BATTEN DOOR, BUT IS EXPENSIVE. TREATED ORNAMENTALLY WITH WROUGHT IRON HINGES, ETC., THIS TYPE OF DOOR MAY BE USED VERY EFFECTIVELY IN SOME PLACES. SOMETIMES BATTENS ARE PUT ON ONE SIDE OF A paneled DOOR, THUS SHOWING AS A BATTEN DOOR ON ONE SIDE AND A paneled DOOR ON THE OTHER.

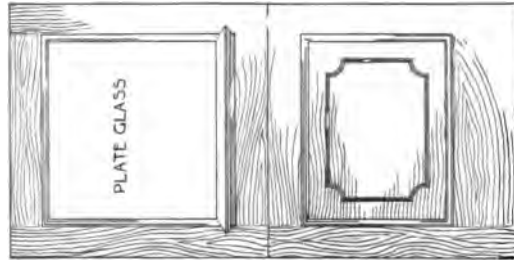
NO. 4. A SOLID BATTEN DOOR MADE OF TWO THICKNESSES OF $\frac{1}{8}$ " MATCHED BOARDS - USUALLY BEADED OR V/D - LAID DIAGONALLY, WITH THE BOARDS ON ONE SIDE AT RIGHT ANGLES TO THOSE ON THE OTHER. A SOLID DOOR OF THIS KIND COVERED WITH SHEET METAL - TIN, IRON, COPPER - WITH LOCK JOINTS AND WITH STRAP HINGES BOLTED ON MAKES THE BEST KIND OF FIRE DOOR. ASBESTOS PAPER IS SOMETIMES PUT UNDER THE METAL COVERING.

NO. 5. A "DUTCH DOOR", - USED FOR OUTSIDE DOORS ONLY. THE UPPER PART IS ARRANGED TO OPEN INDEPENDENTLY OF THE LOWER PART, A SLIDING BOLT FASTENING THE TWO PARTS TOGETHER WHEN REQUIRED TO WORK AS A SINGLE DOOR. THE UPPER PART MAY HAVE EITHER GLASS OR WOOD PANELS.

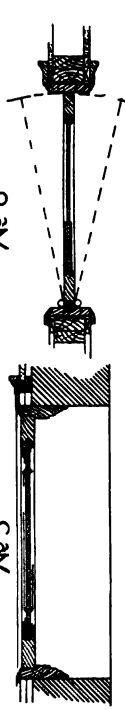
NO. 6. A DOUBLE ACTING SERVICE DOOR FOR PANTRIES, ETC. GLASS IN UPPER PART PREVENTS COLLISIONS IN SERVICE. IN LARGE HOTELS WHERE ONE DOOR IS USED FOR ENTRANCE AND ANOTHER FOR EXIT THE GLASS IS USUALLY DISPENSED WITH AND DOORS ARE OFTEN COVERED WITH CLOTH OR LEATHER.

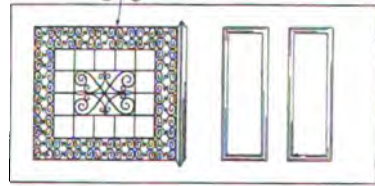


NO. 6

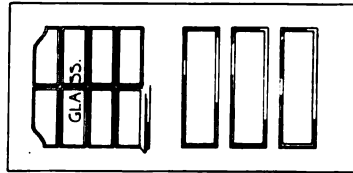


NO. 5

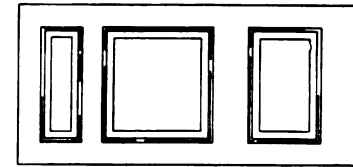




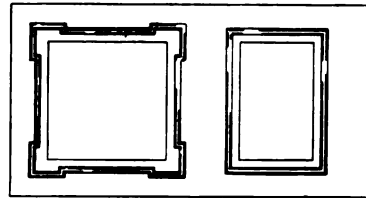
№ 1



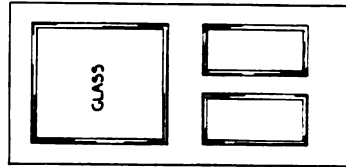
№ 2



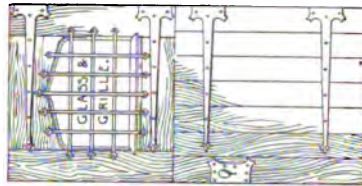
№ 3



№ 4

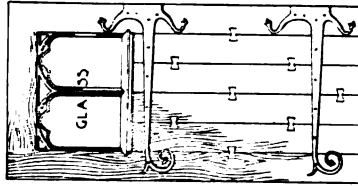


№ 5



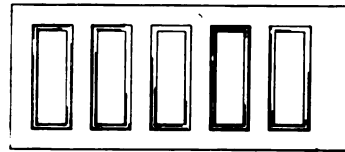
№ 6

A DUTCH BATTEN DOOR.

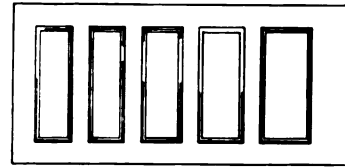


№ 7

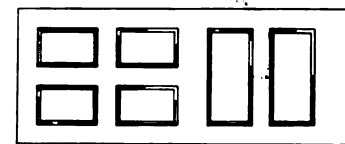
SCALE - 1/4" TO 12".



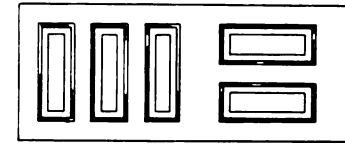
№ 8



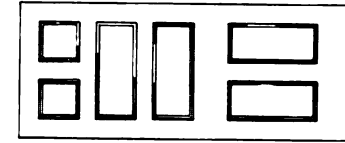
№ 9



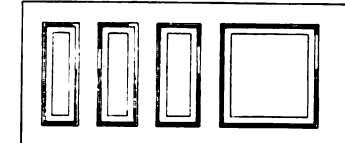
№ 10



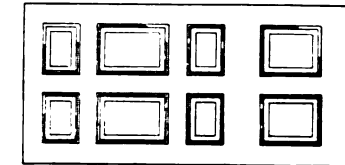
№ 11



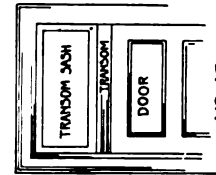
№ 12



№ 13

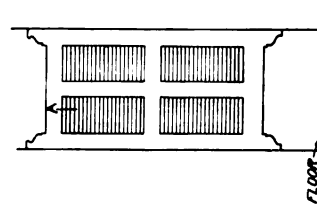


№ 14



№ 15

A COMMON INTERIOR DOOR WITH TRANSOM.

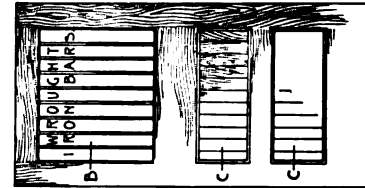


№ 16

A DOOR FOR BATH AND WATER CLOSET COMPARTMENTS.

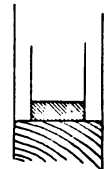


DETAIL SECTION A



№ 17

DOOR FOR BOX STALL IN A STABLE.



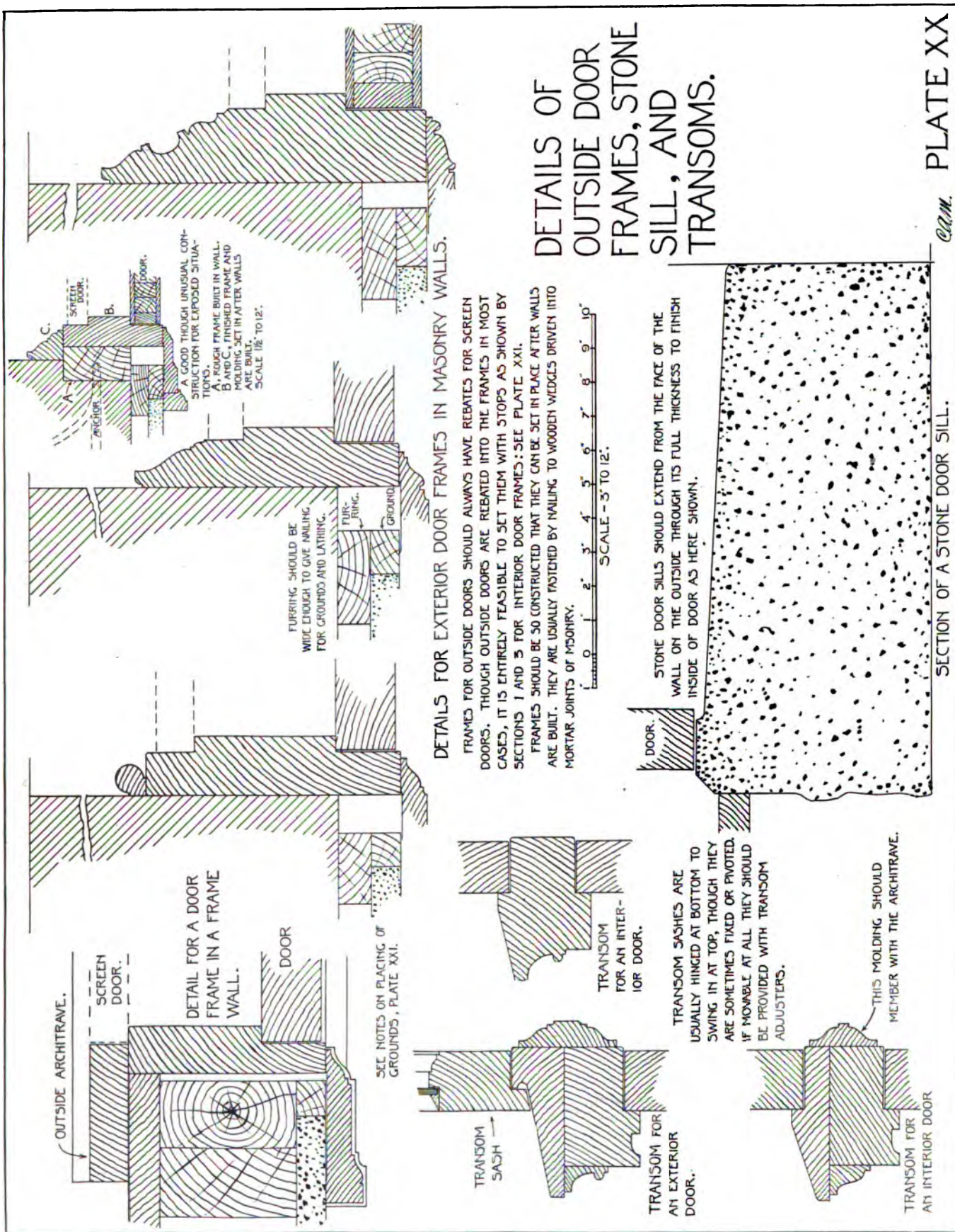
SECTION B



SECTION C

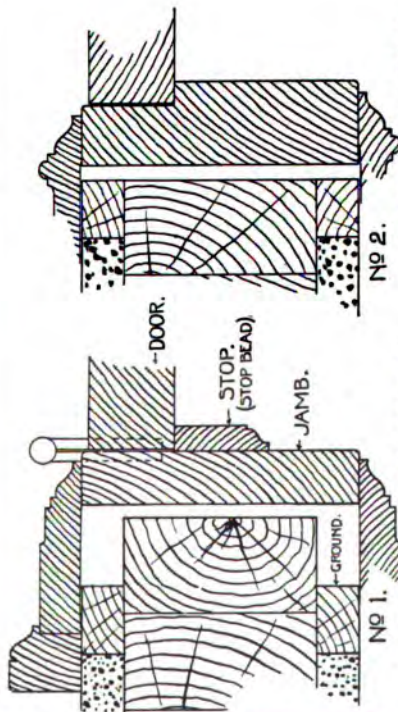
EXAMPLES OF DOORS IN VARIOUS STYLES.

NO 1 TO 7 ARE SUGGESTIONS FOR ENTRANCE DOORS AND NO 8 TO 16 ARE SUGGESTIONS FOR INTERIOR DOORS. W.C. DOORS (NO 17) ARE SIMPLY TO SCREEN THE SEPARATE COMPARTMENTS AND SHOULD BE MADE SMALL AND LIGHT SLATS SHOULD OVERLAP SO AS TO CUT OFF ANY HORIZONTAL LINE OF VISION FROM THE OUTSIDE. BOX STALL DOORS (NO 18) SHOULD BE HEAVY AND STRONG. THE OBJECT IN CONSTRUCTING PANELS AS HERE SHOWN IS TO MAKE SOMETHING THAT IS NOT EASILY DAMAGED BY A KICKING HORSE AND IS EASILY REPAIRED IF DAMAGED.

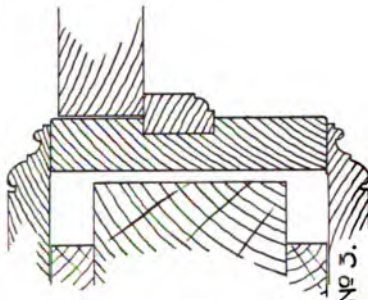


DETAILS OF OUTSIDE DOOR FRAMES, STONE SILL, AND TRANSOMS.

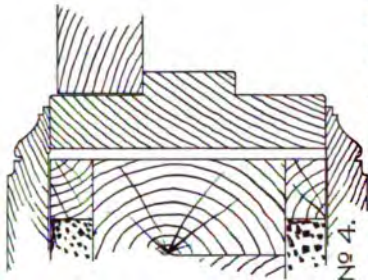
PLATE XX



NO 1.
AN ORDINARY FRAME WITH STOP BEAD.
IN CHEAP WORK THE FRAME IS USUALLY
MADE $\frac{7}{8}$ " INSTEAD OF $1\frac{1}{8}$ " THICK.



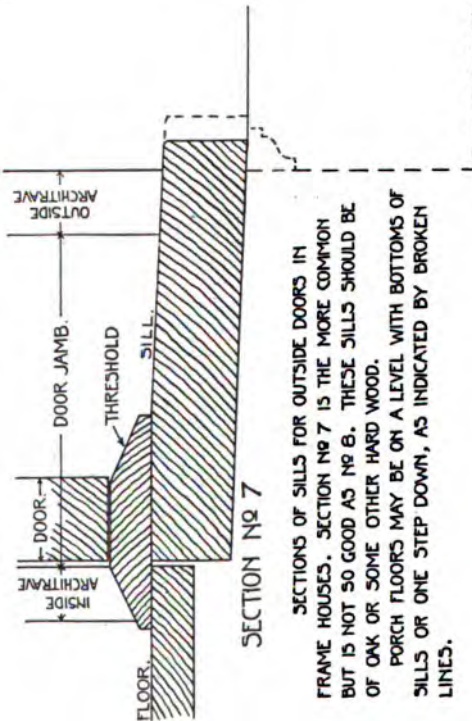
NO 2.
A COMMON REBATED FRAME.



NO 3.
FRAME WITH STOP PLOUGHED IN.
THIS FORM OF CONSTRUCTION IS ONE
OF THE BEST IN EVERY WAY.



NO 4.
DOUBLE REBATED FRAME. THIS ALLOWS
THE DOOR TO BE HUNG ON EITHER SIDE,
BUT IT IS NEITHER A COMMON NOR A
PLEASING FORM.



SECTION NO 7

SECTIONS OF SILLS FOR OUTSIDE DOORS IN
FRAME HOUSES. SECTION NO 7 IS THE MORE COMMON
BUT IS NOT SO GOOD AS NO 8. THESE SILLS SHOULD BE
OF OAK OR SOME OTHER HARD WOOD.
PORCH FLOORS MAY BE ON A LEVEL WITH BOTTOMS OF
SILLS OR ONE STEP DOWN, AS INDICATED BY BROKEN
LINES.



SECTION NO 8.

TWO SUGGESTIONS FOR MODIFICATIONS OF SECTION NO 8 IN
EXPOSED SITUATIONS. SCALE $\frac{1}{8}$ THAT OF NO 8.

COPYRIGHT 1899.

SECTION NO 6.

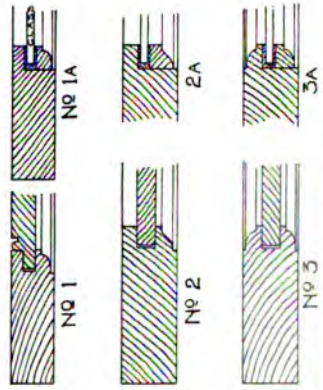
JAMB AT HINGE SIDE OF A DOUBLE
ACTING SPRING HINGED DOOR.

DETAILS OF INTERIOR DOOR FRAMES AND WOODEN SILLS.

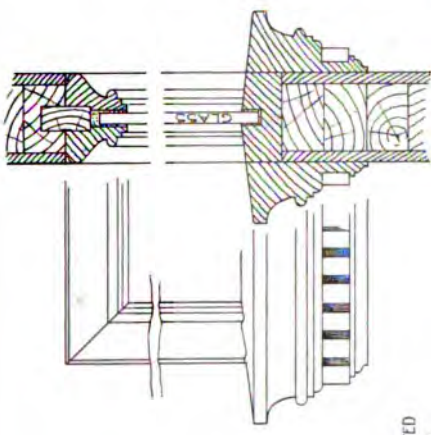
SECTIONS 3 AND 5 SHOW THE BEST FORMS FOR FRAMES. NO 2 IS A VERY
COMMON FORM, BUT IS OBJECTIONABLE ON ACCOUNT OF BRINGING THE TOP ARCHITRAVE
LOWER ON ONE SIDE OF THE DOOR THAN ON THE OTHER.

THESE DETAILS ARE APPLICABLE TO MASONRY WALLS AS WELL AS TO FRAME WALLS,
THE WIDTH OF FRAMES BEING MADE TO SUIT THICKNESS OF WALL.

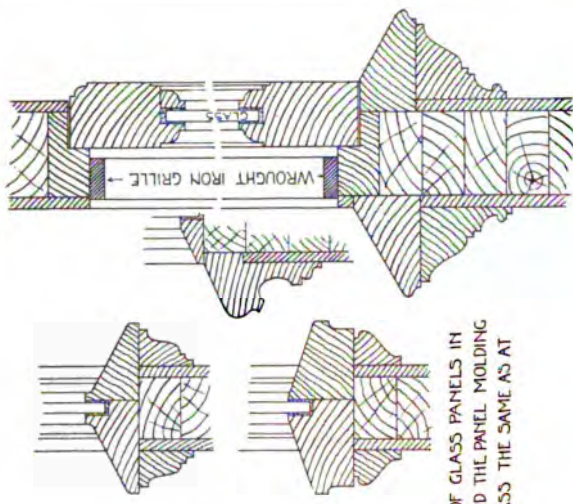
HINGES (BUTTS) SHOULD ALWAYS BE WIDE ENOUGH TO THROW THE DOOR CLEAR OF
PROJECTING ARCHITRAVES, WAINSCOTTINGS, ETC., WHEN IT IS OPENED BACK TO THE WALL.
GROUNDING ON STUD PARTITIONS ARE COMMONLY PLACED AS SHOWN ON SECTIONS 2 AND 4 AND ARCHITRAVES ARE
NAILED TO THE STUDS THROUGH THE PLASTER; BUT IT IS BETTER, AND ON MASONRY WALLS NECESSARY, TO SET THEM AS
IN SECTIONS 1, 3, 5, AND 6 TO GIVE A DIRECT NAILING FOR THE BACK EDGE OF ARCHITRAVE.



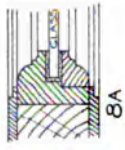
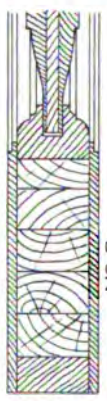
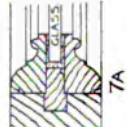
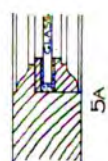
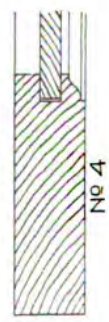
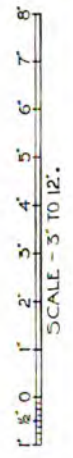
SECTIONS 1 TO 3A ARE DETAILS FOR SMALL DOORS SUCH AS ARE USED FOR KITCHEN AND PANTRY PRESSERS. WIDTHS OF STILES, RAILS, ETC., WILL VARY WITH THE DESIGN AND SIZE OF DOOR.



DETAILS OF MOLDINGS AT BOTTOMS OF GLASS PANELS IN DOORS. THESE ARE OFTEN OMITTED AND THE PANEL MOLDING CONTINUED ACROSS AT BOTTOM OF GLASS THE SAME AS AT TOP AND SIDES.



DOOR WITH GRILLE AND GLASS. THE GLASS IS SET IN A HINGED FRAME SO THAT IT CAN BE OPENED FOR CLEANING THE OUTSIDE.



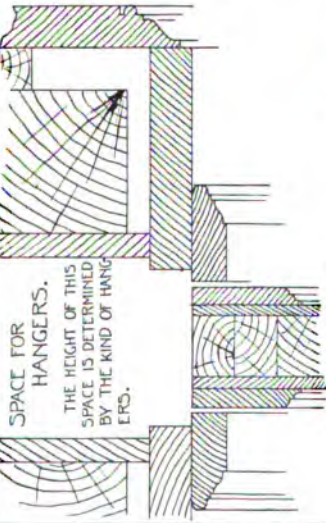
DETAILS OF DOORS

CHEAP AND MEDIUM GRADE DOORS ARE USUALLY MADE FROM SOLID STOCK, BUT THE BETTER GRADES SHOULD BE VENEERED ON A BUILT UP CORE OF WHITE PINE. PANELS ARE USUALLY SOLID, BUT IF VERY LARGE, OR IF THE TWO SIDES ARE REQUIRED TO SHOW DIFFERENT KINDS OF WOOD, THEY SHOULD BE BUILT UP IN "THREE PLY" AS INDICATED IN SECTION No 8. WIDTHS OF STILES, ETC., VARY IN COMMON PRACTICE. SEPARATE MOLDINGS SET WITH FIXED TONGUE ON STILES AND RAILS, LEAVING PANELS FREE TO MOVE, AS SHOWN IN SECTIONS 7, 9, 10, & 11, ARE MUCH BETTER THAN MOLDINGS RUN SOLID. MOLDINGS SHOULD NEVER BE FASTENED DIRECTLY TO PANELS.

SECTIONS 4 TO 7A ARE FOR COMMON SOLID DOORS, WHILE SECTIONS 8 TO 11 ARE FOR MORE EXPENSIVE VENEERED DOORS. SECTIONS 10 AND 11 EACH SHOW TWO STYLES OF FINISH, ONE SIDE DIFFERING FROM THE OTHER. THIS IS UNUSUAL, BUT THE DIFFERENCE IN TREATMENT OF TWO ROOMS MAY SOMETIMES REQUIRE IT.

SPACE FOR
HANGERS.

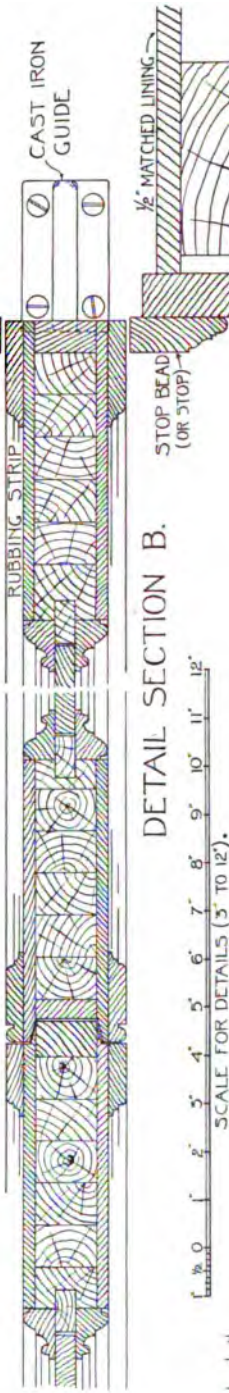
THE HEIGHT OF THIS
SPACE IS DETERMINED
BY THE KIND OF HANG-
ERS.



SECTION A.

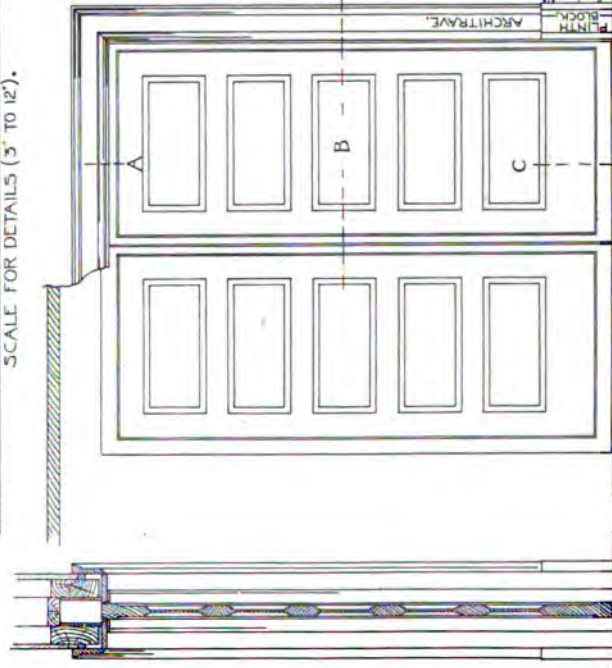
NOTES ON HANGERS.

AS THERE ARE NOW A NUMBER OF EXCELLENT SLIDING DOOR HANGERS ON THE MARKET, IT SEEMED BEST NOT TO SHOW ANY PARTICULAR ONE HERE. FOR SIMPLE AND CHEAP HANGERS ORDINARY GROOVED SHEAVES RUNNING ON A SINGLE STEEL TRACK ARE GOOD, BUT FOR A GOOD GRADE OF WORK THOSE OVERHEAD HANGERS WITH ROLLER BEARINGS AND ADJUSTABLE TUBULAR TRACKS ARE RECOMMENDED. TRACKLESS HANGERS WITH LONG ARMS AND LAZY TONGS MOVEMENT ARE OFTEN USED, BUT THERE ARE USUALLY SO MANY PARTS TO GET OUT OF ORDER THAT THEY ARE SELDOM AS SATISFACTORY AS THE MORE SIMPLE OVERHEAD HANGERS.



DETAIL SECTION B.

SCALE FOR DETAILS (3" TO 12").



SECTION C.

SCALE FOR PLAN, SECTION, AND
ELEVATION (3/8" TO 12").



DETAILS OF SLIDING DOORS.

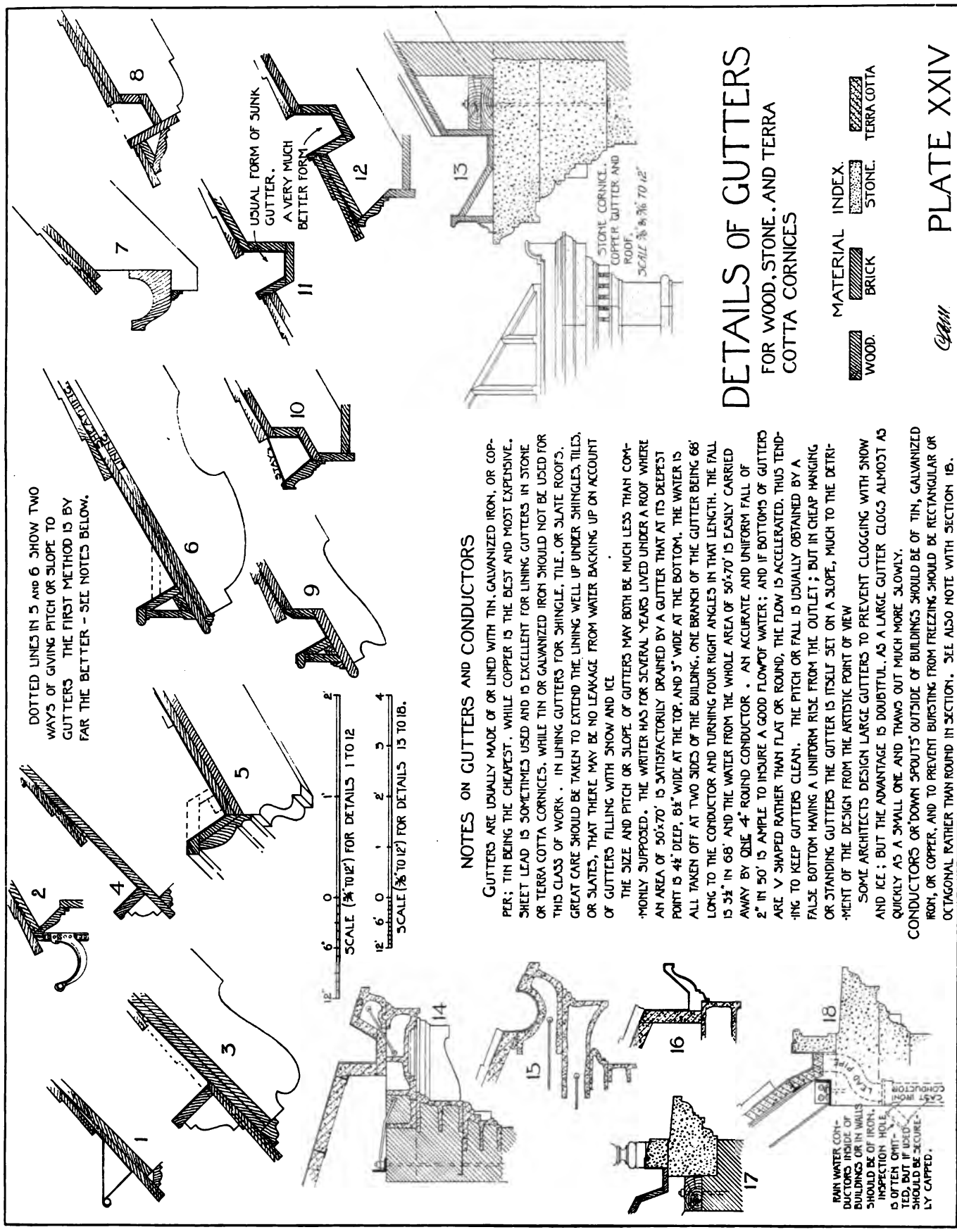
FRAME PARTITIONS FOR ORDINARY SLIDING DOORS VARY FROM 10" TO 15" IN THICKNESS, DEPENDING UPON THE THICKNESS OF THE DOORS AND SIZE OF STUDS. 2" STUDS ARE OFTEN USED, BUT 3" STUDS MAKE A MUCH STIFFER CONSTRUCTION.

POCKET'S SHOULD ALWAYS BE LINED AS A PROTECTION FROM DIRT CAUSED BY FALLING BITS OF PLASTER.

SMALL MOLDED RUBBING STRIPS SHOULD ALWAYS BE PUT ALL AROUND THE MARGINS OF SLIDING DOORS SO THAT STILES, RAILS, AND MOLDINGS WILL WORK FREE OF STOPS AND NOT BE MARRED BY ANY SLIGHT WARPING OF DOORS.

QAM.

PLATE XXIII



DOTTED LINES IN 5 AND 6 SHOW TWO WAYS OF GIVING PITCH OR SLOPE TO GUTTERS. THE FIRST METHOD IS BY FAR THE BETTER - SEE NOTES BELOW.

USUAL FORM OF JUNK GUTTER. A VERY MUCH BETTER FORM.

SCALE (1/8" TO 12") FOR DETAILS 1 TO 12.
SCALE (1/8" TO 12") FOR DETAILS 13 TO 18.

NOTES ON GUTTERS AND CONDUCTORS

GUTTERS ARE USUALLY MADE OF OR LINED WITH TIN, GALVANIZED IRON, OR COPPER; TIN BEING THE CHEAPEST. WHILE COPPER IS THE BEST AND MOST EXPENSIVE. SHEET LEAD IS SOMETIMES USED AND IS EXCELLENT FOR LINING GUTTERS IN STONE OR TERRA COTTA CORNICES. WHILE TIN OR GALVANIZED IRON SHOULD NOT BE USED FOR THIS CLASS OF WORK. IN LINING GUTTERS FOR SHINGLE, TILE, OR SLATE ROOFS, GREAT CARE SHOULD BE TAKEN TO EXTEND THE LINING WELL UP UNDER SHINGLES, TILES, OR SLATES, THAT THERE MAY BE NO LEAKAGE FROM WATER BACKING UP ON ACCOUNT OF GUTTERS FILLING WITH SNOW AND ICE.

THE SIZE AND PITCH OR SLOPE OF GUTTERS MAY BOTH BE MUCH LESS THAN COMMONLY SUPPOSED. THE WRITER HAS FOR SEVERAL YEARS LIVED UNDER A ROOF WHERE AN AREA OF 50'x70' IS SATISFACTORILY DRAINED BY A GUTTER THAT AT ITS DEEPEST POINT IS 4 1/2" DEEP, 8 1/2" WIDE AT THE TOP, AND 5" WIDE AT THE BOTTOM. THE WATER IS ALL TAKEN OFF AT TWO SIDES OF THE BUILDING, ONE BRANCH OF THE GUTTER BEING 66' LONG TO THE CONDUCTOR AND TURNING FOUR RIGHT ANGLES IN THAT LENGTH. THE FALL IS 3 1/2" IN 66' AND THE WATER FROM THE WHOLE AREA OF 50'x70' IS EASILY CARRIED AWAY BY ONE 4" ROUND CONDUCTOR. AN ACCURATE AND UNIFORM FALL OF 2" IN 50' IS AMPLE TO INSURE A GOOD FLOW OF WATER; AND IF BOTTOMS OF GUTTERS ARE V-SHAPED RATHER THAN FLAT OR ROUND, THE FLOW IS ACCELERATED. THIS TENDING TO KEEP GUTTERS CLEAN. THE PITCH OR FALL IS USUALLY OBTAINED BY A FALSE BOTTOM HAVING A UNIFORM RISE FROM THE OUTLET; BUT IN CHEAP HANGING OR STANDING GUTTERS THE GUTTER IS ITSELF SET ON A SLOPE, MUCH TO THE DETRIMENT OF THE DESIGN FROM THE ARTISTIC POINT OF VIEW.

SOME ARCHITECTS DESIGN LARGE GUTTERS TO PREVENT CLOGGING WITH SNOW AND ICE; BUT THE ADVANTAGE IS DOUBTFUL. AS A LARGE GUTTER CLOS ALMOST AS QUICKLY AS A SMALL ONE AND THAW OUT MUCH MORE SLOWLY. CONDUCTORS OR DOWN SPOUTS OUTSIDE OF BUILDINGS SHOULD BE OF TIN, GALVANIZED IRON, OR COPPER, AND TO PREVENT BURSTING FROM FREEZING SHOULD BE RECTANGULAR OR OCTAGONAL RATHER THAN ROUND IN SECTION. SEE ALSO NOTE WITH SECTION 19.

DETAILS OF GUTTERS FOR WOOD, STONE, AND TERRA COTTA CORNICES

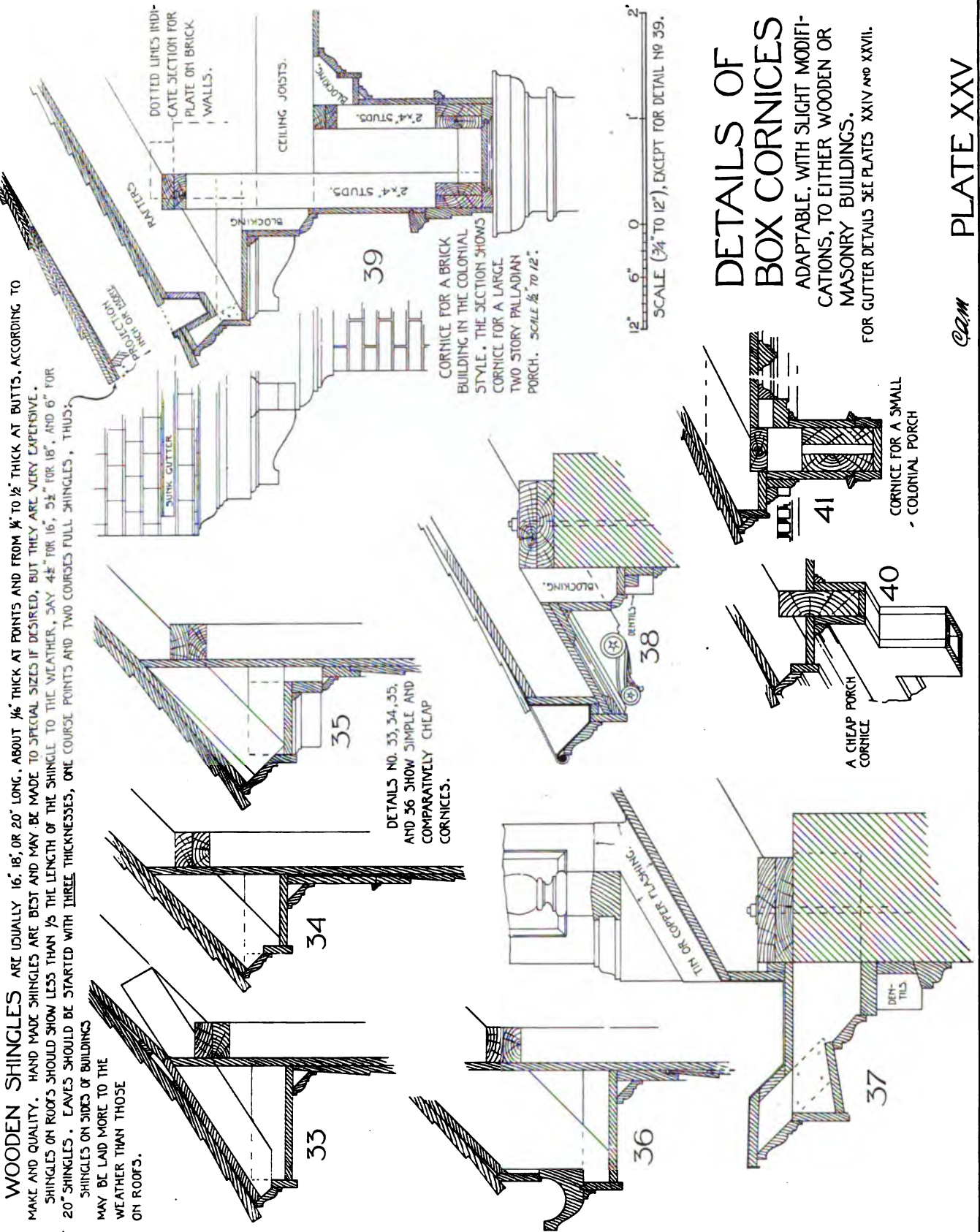
MATERIAL INDEX.

	WOOD.		BRICK		STONE.		TERRA COTTA
--	-------	--	-------	--	--------	--	-------------

WOODEN SHINGLES ARE USUALLY 16", 18", OR 20" LONG, ABOUT 1/4" THICK AT POINTS AND FROM 1/4" TO 1/2" THICK AT BUTTS, ACCORDING TO MAKE AND QUALITY. HAND MADE SHINGLES ARE BEST AND MAY BE MADE TO SPECIAL SIZES IF DESIRED, BUT THEY ARE VERY EXPENSIVE.

SHINGLES ON ROOFS SHOULD SHOW LESS THAN 1/5 THE LENGTH OF THE SHINGLE TO THE WEATHER, SAY 4" FOR 16", 5 1/2" FOR 18", AND 6" FOR 20" SHINGLES. EAVES SHOULD BE STARTED WITH THREE THICKNESSES, ONE COURSE POINTS AND TWO COURSES FULL SHINGLES, THUS:

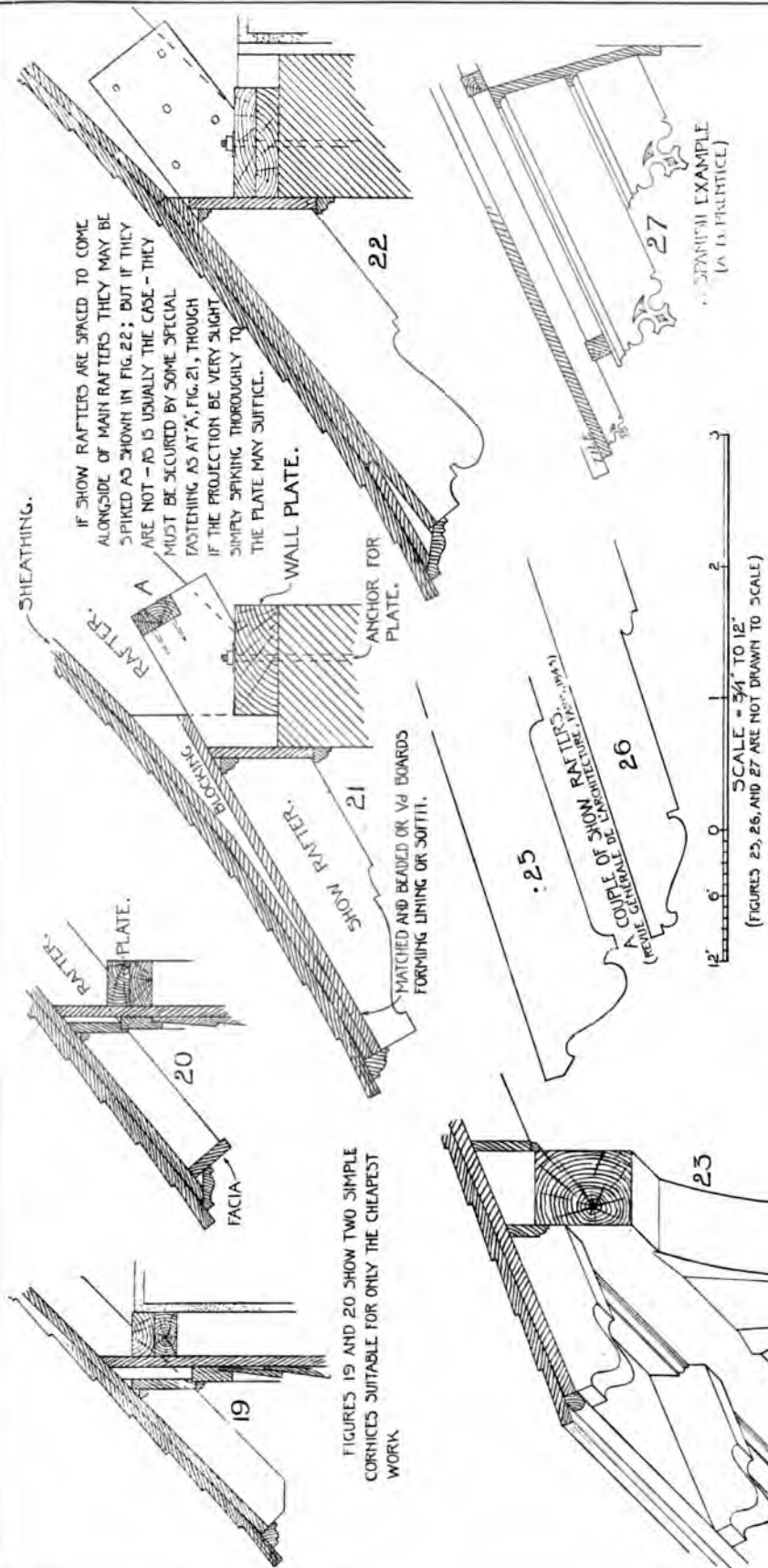
SHINGLES ON SIDES OF BUILDINGS MAY BE LAID MORE TO THE WEATHER THAN THOSE ON ROOFS.



DETAILS OF BOX CORNICES

ADAPTABLE, WITH SLIGHT MODIFICATIONS, TO EITHER WOODEN OR MASONRY BUILDINGS.

FOR GUTTER DETAILS SEE PLATES XXIV AND XXVII.



NOTES

THIS TYPE OF CORNICE IS CAPABLE OF GREAT VARIATION IN TREATMENT, FROM THE PLAINEST AND CHEAPEST TO THE MOST ELABORATE AND COSTLY WORK. THOUGH THE DETAILS HERE GIVEN SHOW SHINGLE ROOFS, TILE, SLATE, OR SHEET METAL MAY BE USED AS WELL. FOR RAIN WATER GUTTERS SEE PLATES XXIV AND XXVI.

IN CHEAP WORK THE 'SHOW RAFTERS' ARE SIMPLY THE MAIN ROOF RAFTERS EXTENDED; BUT IN GOOD WORK THEY ARE OF BETTER MATERIAL, OFTEN SAWED TO PATTERN, AND MAY BE SET AT A DIFFERENT ANGLE FROM THE MAIN RAFTERS TO GIVE A SLIGHT CURVE OR BELL SHAPE TO THE ROOF AT THE EAVES. THIS CURVE SHOULD NOT BE TOO NOTICEABLE, HOWEVER, AS IT THEN DEFEATS ITS OWN END BY BECOMING A VULGARITY RATHER THAN A REFINEMENT IN DESIGN. FOR THE SAME REASON IT IS BETTER TO KEEP THE SOFFIT STRAIGHT, AS IN FIGS. 21 AND 22, RATHER THAN TO CURVE EITHER SOFFIT OR SHOW RAFTERS, THE CURVE FOR ROOF BEING GIVEN IN THE UPPER SHEATHING AS SHOWN. THE EXTRA LINING OR SHEATHING OVER THE SHOW RAFTERS NOT ONLY ALLOWS THIS TO BE DONE, BUT ALSO PREVENTS ROOFING NAILS FROM BEING DRIVEN THROUGH AND SHOWING ON THE UNDER SIDE.

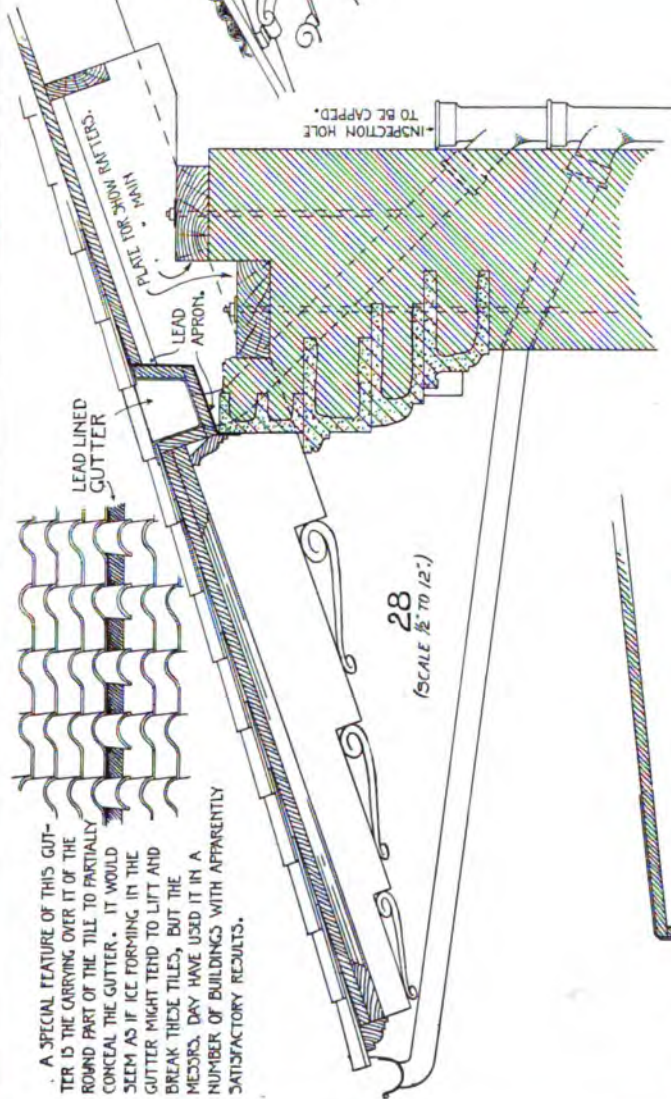
THE DESIGNS HERE SHOWN MAY, WITH SLIGHT MODIFICATIONS, BE USED FOR EITHER FRAME OR MASONRY BUILDINGS.

DETAILS OF OPEN TIMBER CORNICES.

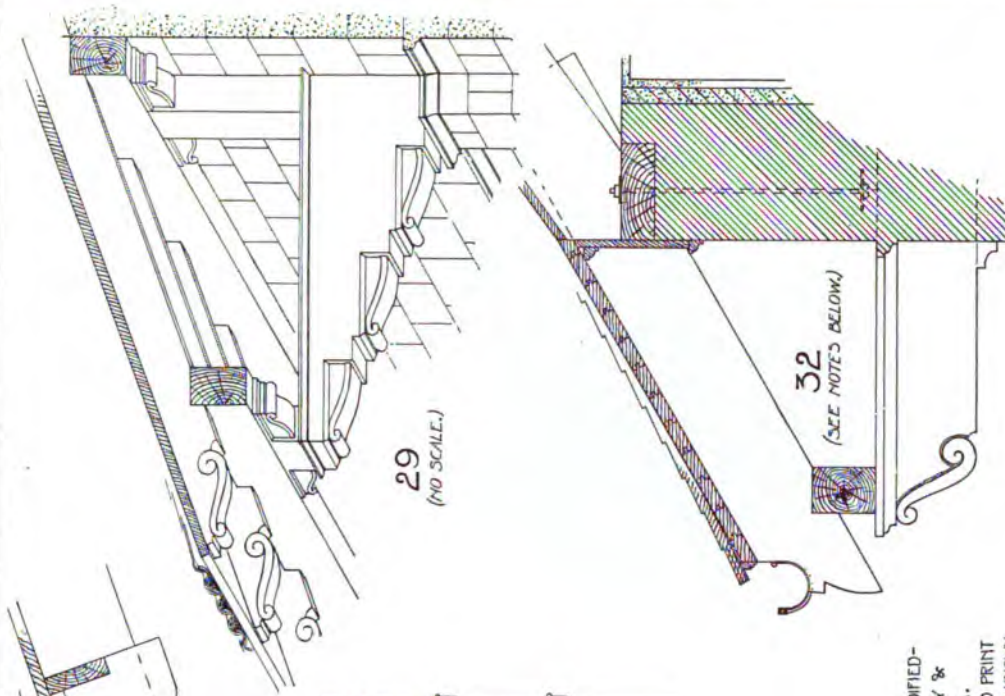
SEE ALSO PLATES XXIV AND XXVII.

CLAM.

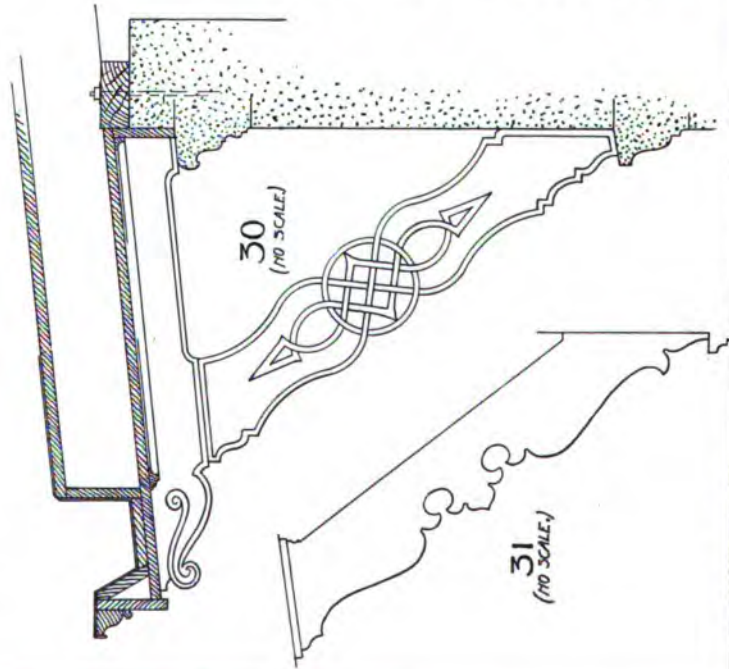
A SPECIAL FEATURE OF THIS GUTTER IS THE CARRYING OVER IT OF THE ROUND PART OF THE TILE TO PARTIALLY CONCEAL THE GUTTER. IT WOULD SEEM AS IF ICE FORMING IN THE GUTTER MIGHT TEND TO LIFT AND BREAK THESE TILES, BUT THE MESSRS. DAY HAVE USED IT IN A NUMBER OF BUILDINGS WITH APPARENTLY SATISFACTORY RESULTS.



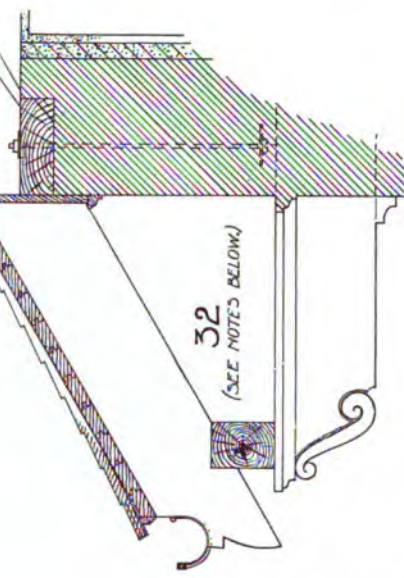
28
(SCALE 1/2" TO 12")



29
(NO SCALE.)



30
(NO SCALE.)



32
(SEE NOTES BELOW)

NOTES.

- NO 28 IS REDRAWN - SLIGHTLY MODIFIED - FROM A CORNICE BY FRANK MILES DAY & BRO. FOR HORTICULTURAL HALL, PHILA.
- NO 29 IS REDRAWN FROM AN OLD PRINT OF AN ITALIAN CORNICE, AUTHOR NOT KNOWN.
- NO 30 IS REDRAWN FROM "REVUE GÉNÉRALE DE L'ARCHITECTURE", PARIS, 1943.
- NO 31, A CORNICE BRACKET FROM SAME SOURCE AS NO 30.
- NO 32 IS DRAWN FROM A PHOTOGRAPH OF A CORNICE BY EDMUND M. WHEELWRIGHT. THIS CORNICE CONSISTS OF HEAVY CANTILEVER BRACKETS SPACED ABOUT 6' APART AND CARRYING AT THE OUTER END A BEAM, WHICH IN TURN CARRIES RAFTERS SPACED ABOUT 2' APART. THE SCALE IS ABOUT 1/2" TO 12".

DETAILS OF OPEN TIMBER CORNICES.

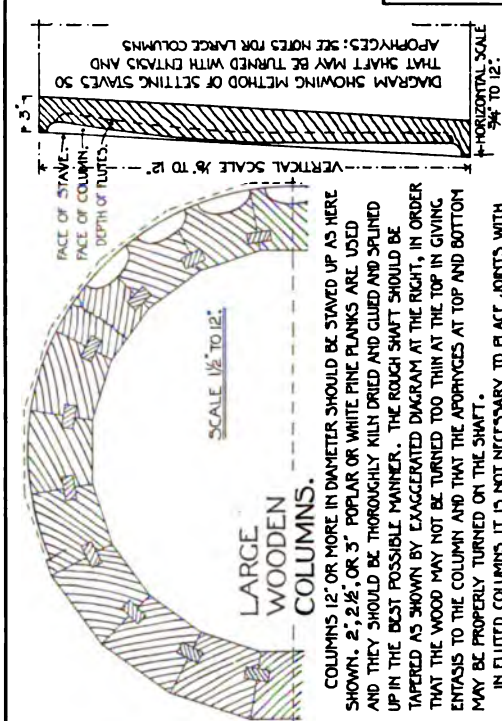
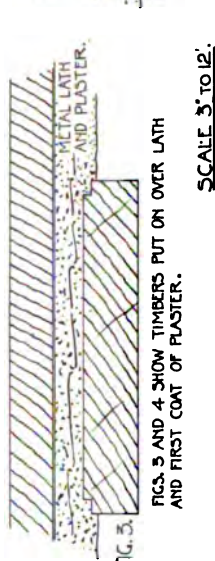
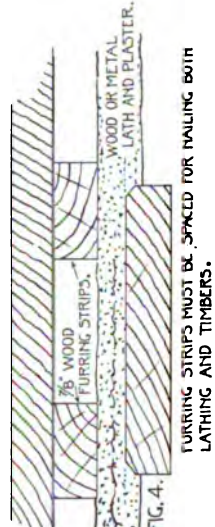
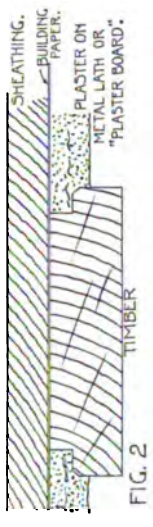
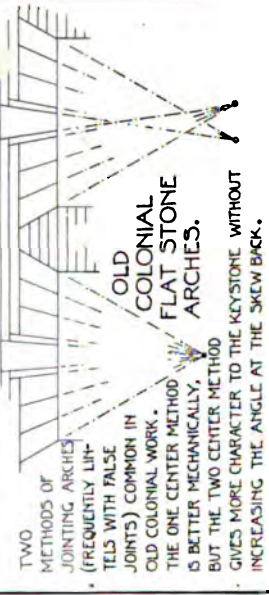
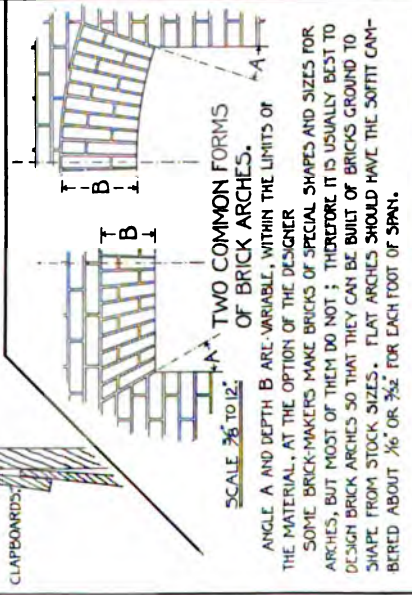
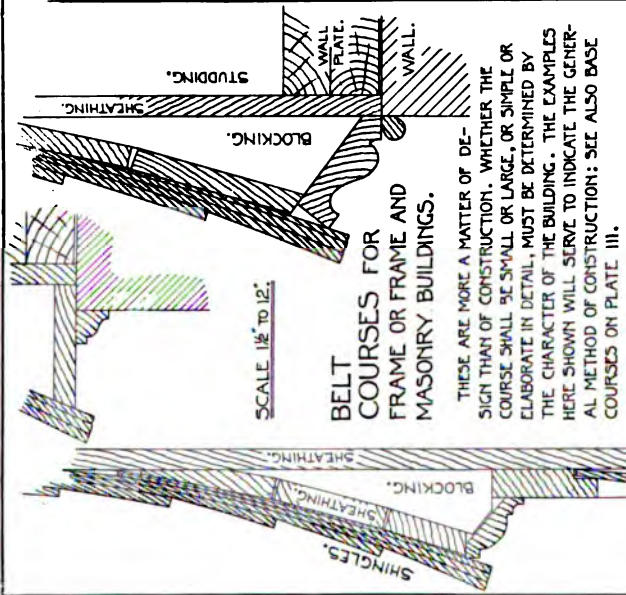
PLATE XXVII

© 1943

HALF TIMBER CONSTRUCTION. USUALLY IN EUROPE THE TIMBER FORMS THE REAL CONSTRUCTION, FILLED IN AND BACKED UP WITH BRICK WHICH IS COMMONLY PLASTERED ON THE OUTSIDE FLUSH WITH THE TIMBERS. IN THIS COUNTRY THE TIMBERS ARE NOT STRUCTURAL, ARE USED FOR EFFECT ONLY, AND ARE USUALLY MADE TO PROJECT FROM $\frac{1}{8}$ TO 1" FROM THE FACE OF PLASTER.

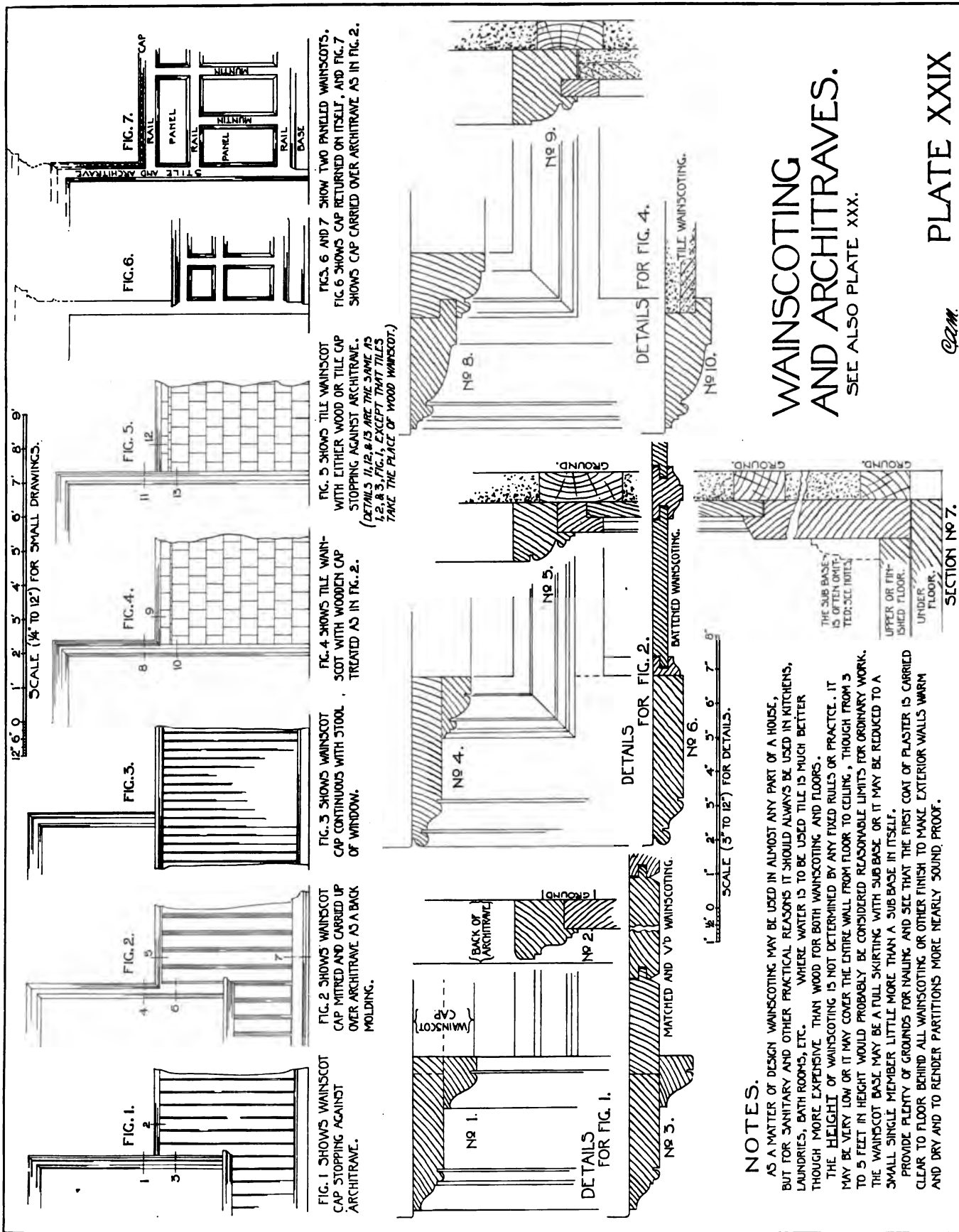
SHAM HALF TIMBER WORK.

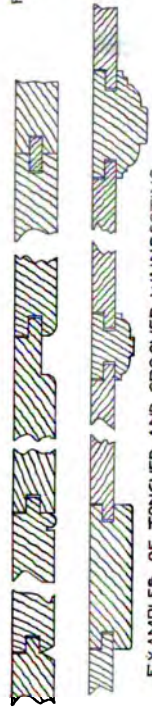
TIMBERS MAY BE $1\frac{1}{4}$ ", $1\frac{1}{2}$ ", OR 2" THICK, AND ARE USUALLY LEFT ROUGH. WOODEN LATHING IS SOMETIMES USED BUT EXPANDED METAL OR WOVEN WIRE IS MUCH BETTER. "PLASTER BOARD" IS GOOD AND FINISHES WITH ONE COAT OF PLASTER. ALL LATHING REQUIRES FURRING TO GIVE CLINCH FOR PLASTER: WOOD FURRINGS FOR WOODEN LATH; AND WOOD, $\frac{1}{4}$ " ROUND IRON, OR SMALL V SHAPED IRON FOR METAL LATH. SHEATHING SHOULD ALWAYS BE COVERED WITH GOOD BUILDING PAPER BEFORE LATHING. PLASTER IS OFTEN FINISHED AS ROUGH CAST OR PEBBLE DASH.



MISCELLANEOUS EXTERIOR DETAILS.

Q2111





EXAMPLES OF TONGUED AND GROOVED WAJNSCOTING.
SIMPLE MATCHED AND V.O. OR BEADED BOARDS (FIRST TWO EXAMPLES) FROM 3 TO 4 INCHES
WIDE ARE CHEAPEST; 1/2" BOARDS WITH THICKER GROOVED PIECES HAVING THE EFFECT OF
BATTENS (LAST 3 EXAMPLES) ARE NEXT IN COST; AND THE PANELED WORK IS THE MOST
EXPENSIVE AND BY FAR THE BEST BOTH FOR DESIGN AND CONSTRUCTION.

PANELING.

SEE ALSO DOOR DETAILS, PLATE XXII.

A ORDINARY CONSTRUCTION, MOLDINGS RUN SOLID
ON FRAME WORK OF PANELING.

B MOLDINGS RUN ON FRAME WORK BUT PANELS SET
IN FROM BACK AFTER BEING FINISHED. WITH THIS
CONSTRUCTION SHRINKAGE OF PANELS DOES NOT AFFECT
STRENGTH OR APPEARANCE OF THE WORK.

C A WRONG, BUT VERY COMMON CONSTRUCTION.
MOLDING IS NAILED TO PANEL AND SHRINKAGE OF PANEL
DISTORTS OR SPLITS WORK AND OPENS JOINTS.

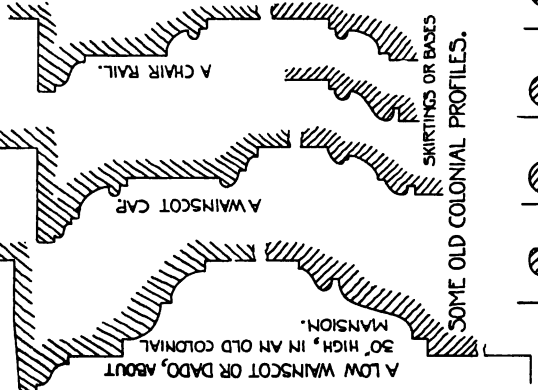
D THE SAME FORM OR DESIGN AS C BUT WITH MUCH
BETTER CONSTRUCTION. MOLDING SHOULD BE GLUED
TO FRAME AND PANELS SET IN FROM BACK AS AT B.

E THE BEST CONSTRUCTION FOR MOLDED PANEL WORK
THAT IS TO SHOW ON BOTH SIDES, AS FOR DOORS, ETC.
SEE DOOR DETAILS, PLATE XXII.

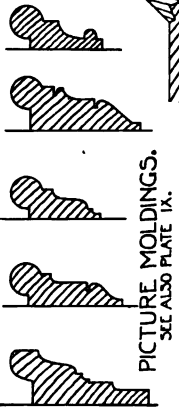
F AND G SHOW TWO CONSTRUCTIONS
FOR PANELS WITH RAISED MOLDINGS.
F IS THE BETTER AS IT ALLOWS MOLDING
TO BE GLUED AND MORE FIRMLY FASTENED TO
FRAME AND AT THE SAME TIME LEAVES THE PANEL
FREE AS IN B. IF MOLDING IN G IS FASTENED AS
SHOWN IT IS LIKELY TO WARP AWAY FROM PANEL,
AND IF FASTENED TO PANEL IT IS AS BAD AS EXAMPLE C.

H PANELS THEMSELVES MAY BE PERFECTLY PLAIN OR THEY MAY BE RAISED,
MOLDED, CARVED, OR OTHERWISE ORNAMENTALLY TREATED. THE MOLDINGS AROUND
MAY BE CARVED IF THE QUALITY OF WORK IS GOOD ENOUGH, BUT NONE OF THE
EXAMPLES SHOWN ABOVE IS HEAVY ENOUGH FOR SUCCESSFUL CARVING EXCEPT FOR
VERY MINUTE WORK.

LARGE PANELS SHOULD BE OF VENEER CONSTRUCTION IN 3 THICKNESSES, AS 12" IS
ABOUT THE LIMIT OF WIDTH FOR SATISFACTORY WORK WITH SOLID PANELS.



SOME OLD COLONIAL PROFILES.

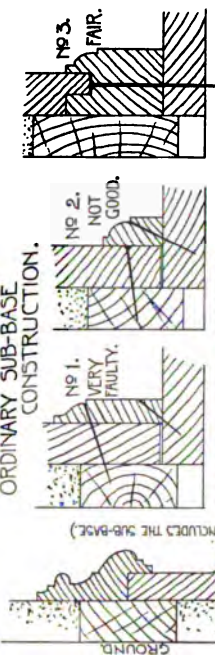


SUGGESTIONS FOR
CONSTRUCTION OF
ANGLES.

PICTURE MOLDINGS.
SEE ALSO PLATE IX.

1" 2" 3" 4" 5" 6" 7" 8" 9" 10" 11"
SCALE, - 3" TO 12."

ORDINARY SUB-BASE CONSTRUCTION.



SKIRTING CONSTRUCTION NOTES.

SETTLEMENT OF FLOOR WILL CAUSE WORK TO TEAR APART IN NO. 1;
NO. 2 IS MEASURE IN DESIGN AND NO. 3 IS GOOD; BUT ALL THREE
REQUIRE THE FINISHED FLOOR TO BE PUT IN PLACE BEFORE THE SKIRT-
ING. NO. 3 MAY BE PUT DOWN TO UNDER FLOOR AND THE UPPER
FLOOR FITTED TO IT, BUT IT IS THEN ALMOST IMPOSSIBLE TO SMOOTH
THE FLOOR PROPERLY WITHOUT MARRING THE BASE.

NO. 4 SHOWS AN EXCELLENT THOUGH AS YET UNUSUAL CON-
STRUCTION. A WIDE GROUND IS PUT DOWN CLOSE TO UNDER FLOOR,
PIECE X IS WELL TOE NAILED TO FLOOR BUT NOT NAILED TO GROUND.
SKIRTING IS PUT ON AND NAILED TO GROUND BUT NOT TO PIECE X.
AFTER ALL WOOD WORK IS READY FOR THE FINAL COAT OF FINISH,
THE TOP FLOOR IS LAID, SMOOTHED AND FILLED; THEN THE SUB-
BASE, WHICH HAS BEEN FINISHED WITH THE OTHER WOOD WORK,
IS PUT IN PLACE AND NAILED TO PIECE X AND TO FLOOR.
THIS MAKES A TIGHT JOB, ALLOWS PIECE X AND THE
SUB-BASE TO SETTLE WITH THE FLOOR WITHOUT OPENING
JOINTS, AND ALLOWS FLOOR TO BE LAID AND SMOOTHED
WITHOUT CROWDING OR MARRING THE BASE.
(SEE ALSO PLATE III.)

PLINTH BLOCKS, ARCHITRAVES, ETC.

ARCHITRAVES FOR DOORS MAY REST ON PLINTH BLOCKS (SEE PLATE XXII) TO AVOID
CARRYING FINE MOLDINGS TO THE FLOOR AND TO GIVE ADDITIONAL THICKNESS AGAINST
WHICH TO STOP SKIRTING. AS ARCHITRAVES, WAJNSCOTINGS, CHAIR RAILS, AND SKIRT-
INGS MEET IN CONSTRUCTION, EACH ONE SHOULD BE DESIGNED WITH REFERENCE TO THE
OTHERS THAT THEY MAY JOIN PROPERLY.

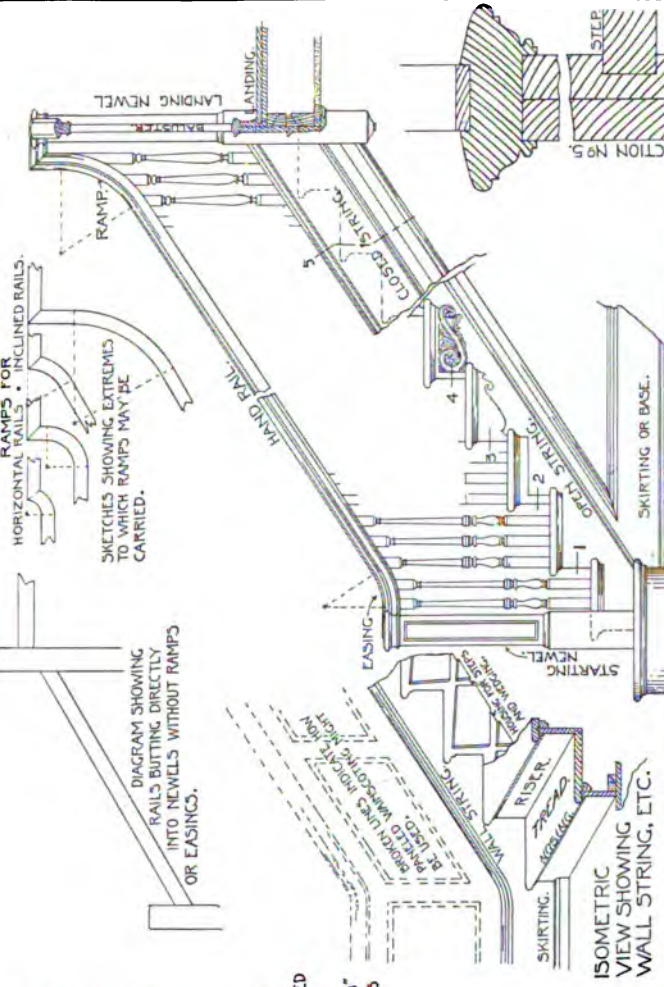
CORNICES, FALSE BEAMS, ETC.

THIS WORK IS OFTEN DONE IN PLASTER AND DECORATED;
BUT IF OF WOOD, IT IS BEST FIRST TO DRAW THE SECTION IN
PROFILE, THEN TO DRAW IN THE CONSTRUCTION, USING 7/8"
BOARDS AS FAR AS POSSIBLE. BOARDS 1 1/8", 1 1/4", AND 1 1/2"
THICK MAY BE USED BUT IT IS MORE DIFFICULT TO GET
THE THICKER LUMBER WELL SEASONED.
IN ALL GOOD INTERIOR WORK BOARDS MAY BE SPLINED,
GLUED UP, AND MOLDED OR WORKED TO ALMOST ANY
DESIRED FORM.

GENERAL INTERIOR FINISH.

SEE ALSO PLATE XXIX.

PLATE XXX



BALUSTERS. BALUSTERS MAY BE TURNED OR SQUARE, SIMPLE OR ELABORATE, AND FROM 7/8" TO 1 1/4" IN DIAMETER FOR ORDINARY WORK, BUT LARGER FOR MONUMENTAL WORK. THE SPACING IS OPTIONAL, BUT IN SOME OF THE BEST OF THE OLD COLONIAL STAIRCASES BALUSTERS ARE SPACED THREE TO A TREAD OF 10", 11", OR 12" RUN.

HEAD - USUALLY 1 1/8" THICK, BUT MAY BE 7/8" OR 1 1/4"

TOO MUCH CARE CAN NOT BE TAKEN IN PROPORTIONING THE RISE AND RUN TO MAKE AN EASY STEP. THE PRODUCT AS WELL AS THE SUM OF RISE AND RUN SHOULD BE PRACTICALLY CONSTANT FOR ALL STAIRS. FROM THIS PRINCIPLE ARE DEDUCED THE FOLLOWING RULES, ALL OF WHICH ARE IN COMMON USE. THE DIMENSIONS ARE TAKEN IN INCHES.

OF THESE RULES THE FIRST GIVES THE MOST UNIFORM RESULTS; BUT A DESIGNER SHOULD ALWAYS BEAR IN MIND THE LIMITATIONS OF ARBITRARY RULES AND MAKE HIS WORK TO MEET THE PARTICULAR REQUIREMENTS OF EACH CASE. WHILE IT IS GENERALLY CONCEDED THAT A 6" RISE WITH A 12" RUN GIVES AN ALMOST IDEAL STAIRCASE, THE ORDINARY DWELLING HOUSE HARDLY AFFORDS ROOM FOR THIS AND IN PRACTICE A RISE OF ABOUT 7" WITH RUN FROM 10" TO 11" IS MORE COMMON. AN 8" RISE WITH A 9" RUN IS A GOOD PROPORTION FOR BACK STAIRS. IT SHOULD ALSO BE BORNE IN MIND THAT THE RISE MUST BE AN EXACT FACTOR OF THE TOTAL HEIGHT OF THE FLIGHT HOWEVER SMALL THE FRACTIONS INVOLVED.

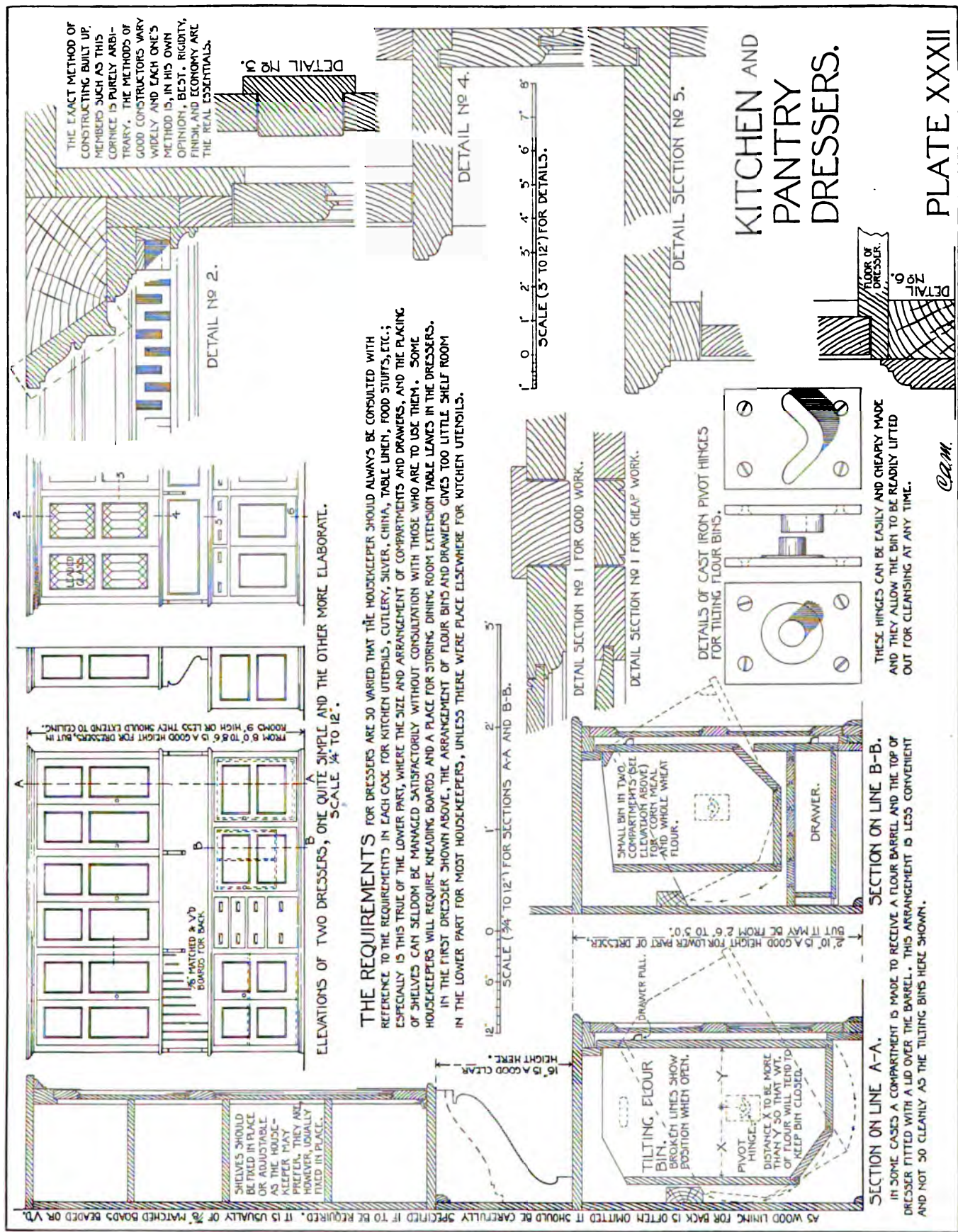
STAIR DETAILS.

NOTE: - ONLY A FEW OF THE PRINCIPAL DETAILS OF STAIR BUILDING ARE GIVEN HERE. AS THE SUBJECT IS TOO BROAD TO ADMIT OF ANYTHING LIKE A COMPREHENSIVE TREATMENT IN A WORK OF THIS KIND.

STAIR
DETAILS.

PLATE XXXI

Cam.



BRICK FLUES SHOULD HAVE $8\frac{1}{2}$ " OF BRICK ALL AROUND OUTSIDE AND 4" WITHIN BETWEEN THEM. THEY SHOULD HAVE JOINTS STRUCK SMOOTH AND, NOTWITHSTANDING MANY AUTHORITIES TO THE CONTRARY, SHOULD NOT BE PLASTERED INSIDE, AS PLASTER IS LIKELY TO PEEL OFF AND CLOG OR AT LEAST ROUGHEN FLUES.

TERRA COTTA FLUE LININGS REQUIRE ONLY 4" OF BRICK OUTSIDE. THEY CAN BE SET IN GROUPS WITH ONLY OCCASIONAL WITHS TO TIE AND STRENGTHEN CHIMNEY, AND THEY GIVE CLEAN SMOOTH FLUES OF UNIFORM SECTION THROUGHOUT. THE SAVING OF BRICK AND LABOR, TO SAY NOTHING OF ROOF, MAKES TERRA COTTA FLUES VERY LITTLE MORE EXPENSIVE THAN PROPERLY CONSTRUCTED BRICK FLUES.

THE CHIMNEY BREAST IS OFTEN CARRIED UP STRAIGHT IN BRICK, ESPECIALLY IF THERE IS A FIREPLACE ABOVE; OR IT MAY BE SET BACK FROM FACE OF FIREPLACE TO SAVE SPACE AND MATERIAL AND GIVE A WIDER TOP TO MANTEL SHELF, OR IT MAY BE SET BACK AND FURRED OUT FLUSH AS HERE SHOWN. THERE IS NO FIXED RULE GOVERNING THIS IN PRACTICE.

WITH BACK OF FLUE STRAIGHT TO FIREPLACE OR SLOPING TO THROAT A DOWN DRAFT AT BACK, WHICH IS LIKELY TO OCCUR WHEN FIRE IS STARTED, WOULD DRIVE PUFFS OF SMOKE INTO THE ROOM. THE FLAT SHELF DEFLECTS SUCH DOWNWARD CURRENTS BACK INTO THE WARM-UPWARD CURRENT UNTIL THE HEATED AIR REACHES SUFFICIENTLY HIGH TO MOVE UPWARD TOGETHER.

THE FLUE, BEGINNING AT THROAT, SHOULD BE GRADUALLY CONTRACTED TO NORMAL SIZE DIRECTLY OVER MIDDLE OF FIREPLACE; THEN, IF NECESSARY, IT MAY BE DEFLECTED BY EASY BENDS TO ONE SIDE OR THE OTHER. IF GATHERED DIRECTLY TO ONE SIDE FROM THE THROAT, THE DRAFT IN THROAT WOULD BE STRONGEST ON SIDE NEAREST FLUE AND THE FIREPLACE WOULD BE LIKELY TO SMOKE AT THE OTHER SIDE.

WIDTH OF FACING, OR DISTANCE FROM FIREPLACE OPENING TO WOOD MANTEL, SHOULD NEVER BE LESS THAN 6" AT SIDES OR 8" AT TOP OF FIREPLACE.

ROUGH BRICK ARCH BACK OF FACING.

15-20" IRON BAR SLIGHTLY GAMBLED AND WITH ENDS TURNED UP.

CORNER BEAD.

FACING OF TILE, MARBLE, OR MOSAIC.

BRICK FACING SHOULD BE BUILT UP WITH AND AS A STRUCTURAL PART OF FIREPLACE - SEE GENERAL NOTES.

STEEL JOIST HANGERS.

TWO HALF PLANS SHOWING FINISHES AND FLUES FOR FIREPLACES. WITH A GREAT MANY FIREPLACES IN A SINGLE STACK, IT OFTEN REQUIRES CONSIDERABLE INGENUITY TO ARRANGE FLUES SO THAT THEY WORK OUT PROPERLY THROUGHOUT THE ENTIRE HEIGHT. SEE NOTES ON BRICK AND TERRA COTTA FLUES ABOVE.

A SUGGESTION FOR A CAST IRON DAMPER. THE OPERATING GEAR SHOULD BE AT THE RIGHT HAND SIDE.

SCALE OF DAMPERS 34" TO 12".

PLAN, ELEVATION, AND SECTION OF AN ORDINARY FIREPLACE.

PLAN AND ELEVATION SHOW TWO METHODS OF FINISHING, ONE EACH SIDE OF CENTER LINE.

CELLAR FLOOR.

CAST IRON ASH PIT DOOR.

ASH PIT.

ASH DUMP.

TRIMMER ARCH.

CONCRETE FILLING UNDER HEARTH.

FINISHED FRONT HEARTH OF BRICK, TILE, STONE, OR MOSAIC.

BACK HEARTH OF FIRE BRICK OR SOAPSTONE.

ASH DUMP.

LAUGH DRY SHOVE.

BRASS OR IRON CORNER BEAD.

TILE FACING.

POSITION OF GROUNDS SHOULD BE DESIGN OF MANTEL.

TRIMMER ARCH.

JOIST HANGERS.

TAIL JOISTS.

HEADER.

HARD WOOD BORDER.

GENERAL NOTES.

A PROPERLY CONSTRUCTED FIREPLACE SHOULD GIVE OFF INTO THE ROOM A MAXIMUM AMOUNT OF HEAT FOR THE FUEL CONSUMED AND SHOULD NOT SMOKE. IT IS EASY TO ACCOMPLISH EITHER OBJECT IF THE OTHER BE NEGLECTED, BUT TO ACCOMPLISH BOTH REQUIRES THE MOST ATTENTION TO DETAILS OF FORM AND CONSTRUCTION.

SPRAYED JAMBS REFLECT MORE HEAT INTO ROOM THAN JAMBS SET AT RIGHT ANGLES TO BACK; BUT THE CONSTRUCTION OF FLUE AND THROATING IS RESPONSIBLE FOR MOST OF THE GOOD OR EVIL IN A FIREPLACE. CHIMNEYS SHOULD BE CARRIED WELL ABOVE THE HIGHEST LINE OF NEAR-BY ROOFS AND EACH FIREPLACE SHOULD HAVE A SEPARATE FLUE. EXPERIENCE SEEMS TO INDICATE THAT THE CLEAR SECTIONAL AREA OF THE FLUE SHOULD BE ABOUT $\frac{1}{2}$ TO $\frac{3}{4}$ OF THE FIREPLACE OPENING. THE THROAT SHOULD ALWAYS EXTEND ACROSS THE FULL WIDTH OF OPENING AS NEAR THE FRONT AS POSSIBLE, AND ITS SECTIONAL AREA, IF DAMPER IS NOT USED, SHOULD BE NEARLY THE SAME AS OR A LITTLE LESS THAN THAT OF THE FLUE. DAMPERS ARE EXCELLENT TO REGULATE WIDTH OF THROAT AND DRAFT, BUT THEY SHOULD OPEN THE FULL LENGTH OF THROAT. IN LARGE OR HIGH FIREPLACES COUNTERBALANCED "BLOWERS" OR "APRONS" OF IRON OR COPPER (USUALLY TREATED ORNAMENTALLY) ARE SOMETIMES HUNG TO SLIDE UP OR DOWN JUST BACK OF FACING OR AT FRONT OF THROAT. THE BACK OF FIREPLACE SHOULD INCLINE FORWARD TO THROAT. SEE FURTHER NOTES ON DRAWINGS.

FIREPLACES ARE USUALLY FROM 2' 6" TO 4' WIDE, 16" TO 22" DEEP, AND ABOUT 2' 6" HIGH, THOUGH MANY ARE MADE LARGER AND COAL GRATES ARE OFTEN MADE MUCH SMALLER. AN ASH FLUE SHOULD BE PROVIDED TO CARRY ASHES TO FIT IN CELLAR. ONE ASH FLUE IS USUALLY SUFFICIENT TO SERVE ALL THE FIREPLACES IN AN ORDINARY CHIMNEY.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

TRIMMER JOISTS.

FIREPLACE DETAILS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

SCALE - 3/8" TO 12', EXCEPT FOR DAMPERS.

89080452295



b89080452295a